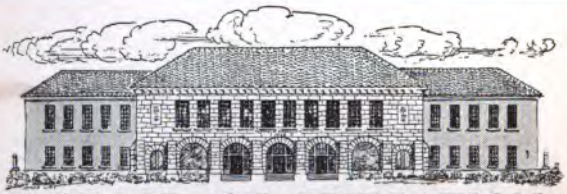

THE GARY SCHOOLS

A GENERAL ACCOUNT

THE GARY PUBLIC SCHOOLS

The results of the study of the Gary Public Schools, undertaken on the invitation of the Superintendent and the Board of Education of Gary, will be published in eight parts, as follows:

1 **The Gary Schools: A General Account**
By Abraham Flexner and Frank P. Bachman
(25 Cents)

2 **Organization and Administration**
George D. Strayer and Frank P. Bachman
(15 Cents)

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THE GARY SCHOOLS

A GENERAL ACCOUNT

BY
ABRAHAM FLEXNER
AND
FRANK P. BACHMAN

GENERAL EDUCATION BOARD
61 BROADWAY NEW YORK
1918

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PREFACE

The study of the Gary Schools was undertaken by the General Education Board at the request of the Board of Education and the City Superintendent of Gary. The results of the study will be published in a series of special reports, dealing with the more characteristic or important aspects of school work at Gary, and the present volume which endeavors to present a general account of the entire system. In the writing of this volume, the separate reports have been summarized in the chapters dealing with their respective subjects. For the remaining chapters of the book and for the general presentation, the authors are alone responsible.

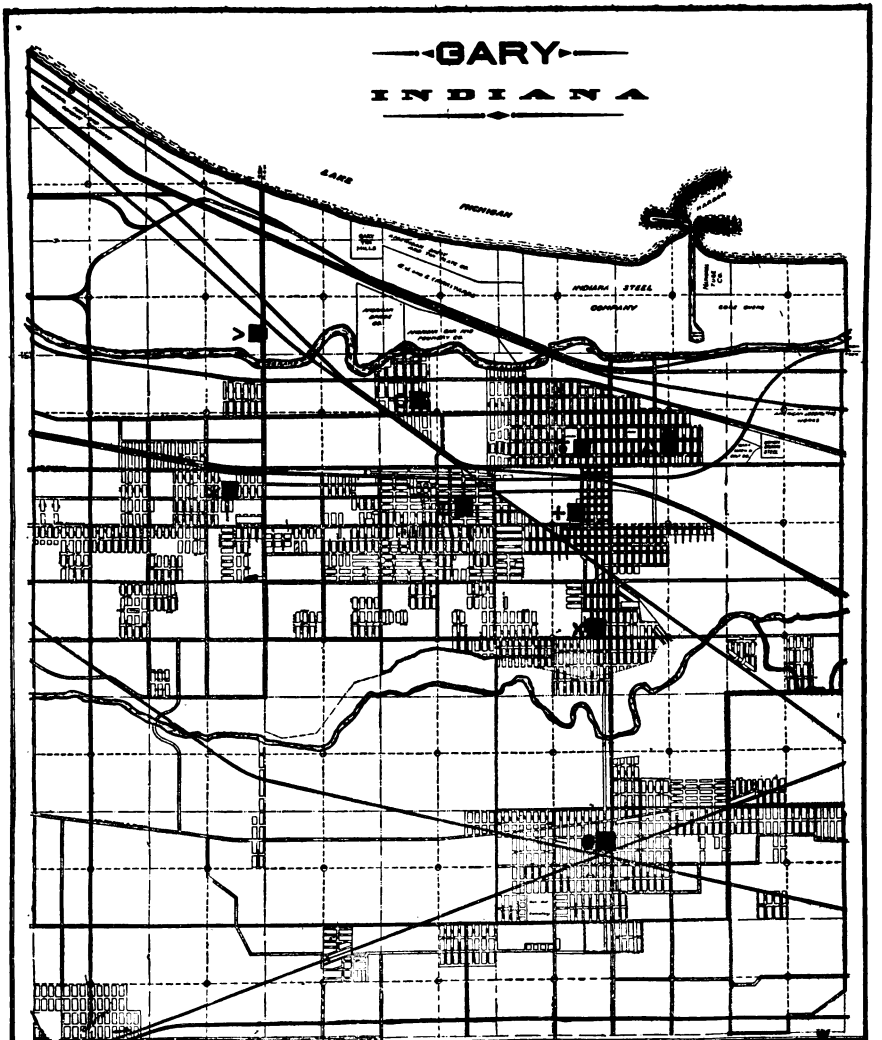
The general volume has been issued first, in order that a comprehensive view of the entire situation might be presented. It will be promptly followed by detailed studies of (1) Organization and Administration, (2) Costs, (3) Industrial Work, (4) Household Arts, (5) Physical Training and Play, (6) Science Teaching, and (7) Measurement of Classroom Products.

The authors desire to make grateful acknowledgment to the City Superintendent and other school officials of Gary for their coöperation and courtesy, and to their associates in this study for their unfailing patience and

helpfulness. Special thanks are due to Mr. Frank L. Shaw for his services in compiling and arranging statistical data, and for his reading and correction of proof; to Miss Edith Holman, who assisted in the statistical work, and to Miss Anna C. Thornblum who in the capacity of secretary has rendered valuable aid at every stage of the undertaking. Mr. Trevor Arnett, of the University of Chicago, Dr. Frederick Cleveland, of Boston, and Dr. Frank E. Spaulding, Superintendent of the Cleveland Schools, read the report on Costs and made important suggestions regarding the arrangement of the tables contained in that volume. Miss Anna M. Cooley, of Teachers College, read the report on Household Arts, Mr. Shattuck O. Hartwell, Superintendent of the Muskegon Schools, the report on Organization and Administration, and Dr. Frank W. Ballou, Associate Superintendent of the Boston Schools, the report on Measurement of Classroom Products. The whole of the present volume was read by Professor Paul H. Hanus, of Harvard University. To all those who have thus assisted the authors take pleasure in acknowledging their indebtedness.

New York, August 1, 1918.

ABRAHAM FLEXNER,
FRANK P. BACHMAN.



> Clarke School

⁎ West Gary School

○ Ambridge School

□ Beveridge School

ŏ Jefferson School

△ Emerson School

+ Froebel School

× 24th Avenue School

e Glen Park School

THE GARY SCHOOLS
A GENERAL ACCOUNT

I: GARY: ITS INDUSTRIES AND ITS PEOPLE

THE town of Gary is located twenty seven miles southeast of Chicago, on the southern point of Lake Michigan,[1] in a region that a bare decade ago was given over entirely to swamp land, sand dunes, and forests of scrub oak. It is one of many industrial centers which in recent years have sprung up, almost over night, on the outer rim of a large city. To provide space for its own plants and those of its subsidiaries, to secure in advance abundant room for future expansion, with necessary terminal, transportation, and housing facilities, the United States Steel Corporation purchased 14,000 acres of land, with eight miles of unbroken lake frontage. The present investment in site and plants runs well above $100,000,000; the population of the town has reached, perhaps passed, fifty thousand.

On the extreme east of the strip, facing the lake, is the plant of the National Tube Company, now under construction; directly south, the Coke By-Products Company, with its hundreds of ovens; westward, across an artificial harbor large enough for great ore vessels, lies the Indiana Steel Company, with a square mile of furnaces and mills; on its western flank are the American Sheet and Tin Plate

[1]See frontispiece map.

Company, the Kirk Railroad Yards, the proposed site of the American Car and Foundry Company, and the plant of the American Bridge Company, the second largest fabricator of structural steel in the world. Two miles westward, amidst mountains of slag brought from the blast furnaces and used as basic material, is situated the Universal Portland Cement Company, with a daily capacity of 40,000 barrels. South of the Grand Calumet River, and to the extreme east, a site has been reserved for the American Locomotive Company. Near by are two independent organizations—The Gary Bolt and Screw Company and The Union Drawn Steel Company. Together the companies mentioned form an industrial colony of gigantic proportions, already employing between 12,000 and 15,000 men, and likely to require in the near future twice or thrice the number.

Gary is thus a steel town. The steel mill workers form the basis and the bulk of the population; there are, besides, executives, clerks, shopkeepers, etc., enough to carry on the business of the mills and to sustain the life of the community. Leisure class there is practically none; Gary is a working town. Its occupations center about the production and fabrication of steel, and about such business, trades, and professions as are required to care for a community of, say, fifty thousand people. Complete occupational data are not available, but we know how young men and women between nineteen and twenty, heads of families with children under twenty one, and working mothers—a total of 5,321—are occu-

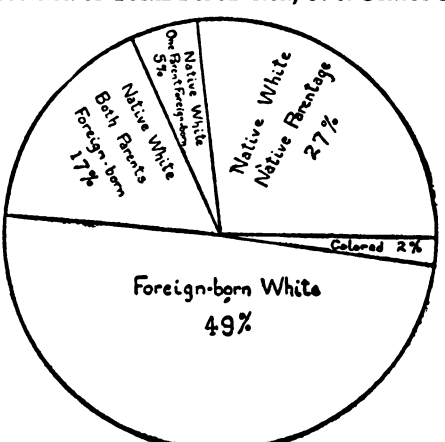
Representative of Best Residential Section

pied.[1] The data, while covering the principal occupation groups, are, of course, no index to the total number engaged in particular pursuits, and may not show correctly the relative proportions of skilled, semiskilled, and unskilled workers. However, on the face of the figures, it appears that three fifths of all Gary wage earners are employed in manufacture, and that not more than a fourth of those engaged in gainful pursuits are skilled workmen.

The population of the town is predominantly foreign in origin. In 1910, only 27 per cent. were native born of

FIGURE 1

COMPOSITION OF TOTAL POPULATION, U. S. CENSUS 1910



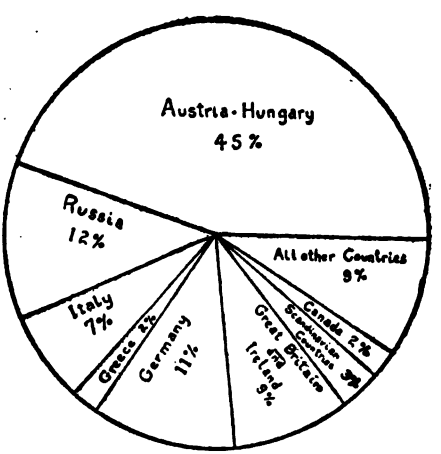
[1]See Table I, Appendix D, page 216. For occupational data on boys and girls between fourteen and eighteen years, see Table XXX, Appendix D, page 250.

native parentage; 22 per cent. more were natives, but both parents of four fifths of these were foreign born. Thus well nigh two thirds of the total population of Gary in 1910 may be regarded as of actual or recent foreign stock. (Figure 1.)

Of the foreign stock, two thirds come from Austria, Hungary, Russia, Italy, and Greece, a fourth from Germany, Great Britain, the Scandinavian countries, and Canada, with scattered representatives from almost every other quarter of the globe. (Figure 2.) A census in April, 1916, limited to persons under twenty one years of age, makes a similar showing. Of the 12,876 youths

FIGURE 2

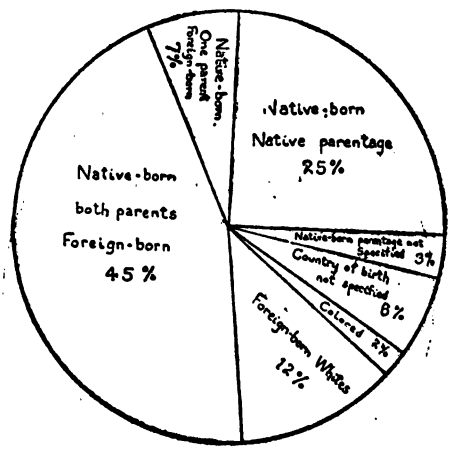
NATIONALITY OF TOTAL FOREIGN BORN, AND OF PARENTS OF ALL NATIVE BORN HAVING BOTH PARENTS FOREIGN



about whom we have information,[1] 77 per cent. are native born (Figure 3), but only 25 per cent. are of native parents. Both parents of 45 per cent. and one parent of 7 per

FIGURE 3

COMPOSITION OF POPULATION UNDER TWENTY ONE YEARS OF AGE IN 1916



cent. were immigrants; 12 per cent. had themselves passed through Ellis Island. Thus, of the youth of Gary, 57 per cent. belong to foreign stock, that is, are either foreign born themselves or are of foreign parentage. Of this foreign stock, slightly more than three fourths come from southern and eastern Europe. (Figure 4.) Since the census of 1910, this contingent has relatively in-

[1]These data were collected by the Gary authorities in making the school census of 1916; we tabulated them, following the classification of the U. S. Census of 1910.

creased; western and northern Europe has contributed relatively less.

It may be safely stated that at the present time

FIGURE 4

NATIONALITY OF FOREIGN BORN UNDER TWENTY-ONE YEARS OF AGE, AND OF PARENTS OF NATIVE BORN UNDER TWENTY-ONE YEARS OF AGE HAVING BOTH PARENTS FOREIGN

two thirds of the population of Gary are either foreign born or of full foreign parentage. But these foreigners did not all ship direct for Gary; a considerable proportion have gone thither from other American cities, for a canvass of the foreign born heads of families shows that 44 per cent. have been in this country eleven years or more, their immigration thus antedating the founding

of Gary.[1] A little under half (46 per cent.) of the present heads of families with children under twenty one have been in Gary less than five years, 47 per cent. have been there longer, 7 per cent. are unaccounted for. Two per cent. have been there since the city began, 10 per cent. have been there less than a year.

The composition of the population of Gary is an educational factor that needs constantly to be held in mind. All American cities are more or less foreign, but the Gary situation is distinctly more difficult and complex than is usual. The Gary statistics for general population date back, as before stated, to 1910; since then the population has more than trebled and it is practically certain that this increase has taken place more largely on the non-American than on the native American side. Even so, on the basis of the 1910 figures, 49 per cent. of the Gary white population is foreign born as against Boston's 36 per cent., Detroit's 34 per cent., St. Louis's 18 per cent., and Kansas City's 10 per cent., considering the larger cities; and Akron's 19 per cent., South Bend's 25 per cent., and Hammond's 27 per cent., considering the smaller cities of industrial type.[2] Thus Gary has an unusually large proportion of foreigners and continues to receive additional increments with perhaps unprecedented rapidity.

[1]Data were collected as to heads of families having children under twenty one years of age, a total of 4,633—2,772 foreign born, 1,758 native born, and 103 unknown.

[2]See Table II, Appendix D, page 217.

A given school organization will undoubtedly accomplish more satisfactory results with a homogeneous than with a heterogeneous school population recruited largely from culturally backward peoples. Hence, Gary is fairly entitled to a measure of discount on this score. On the other hand, too much should not be made of it, for every American city faces a more or less similar problem, though for the most part on more advantageous terms.

We turn now from the people to the conditions under which they live. Through a subsidiary organization called the Gary Land Company, the Steel Corporation was instrumental in laying out and building that part of the city which lies mainly between the Grand Calumet River, on the north, and the Wabash Railroad, on the south—an area of about nine square miles. Modern methods of city planning were not employed. A checkerboard scheme was followed; lots of thirty feet frontage with a depth of one hundred fifty to two hundred feet were marked off; the streets all cross at right angles. Two reservations were made for park purposes—one of twenty acres on the east side, another of ten on the west. The heart of the city lies at the intersection of Broadway, a wide thoroughfare running north and south, and Fifth Avenue, running east and west. Broadway is the main business street; the Carnegie Library, the Young Men's Christian Association, and the federal post office are situated on Fifth Avenue on sites donated by the Gary Land Company.

Representative of Poorer Residential Section

Most of the dwelling houses in this section of the city were erected by the Gary Land Company and sold on easy terms. Though close together, they are comfortable, well lighted, sanitary, and attractive. The monotony is somewhat relieved by other structures—churches, apartment houses, and more ambitious residences, and by the well kept lawns characteristic of this part of the town. Here dwell nearly one half of the total population—local corporation officials, skilled steel workers, professional and trades people.

There is, however, another side to housing in Gary. One half of Gary, as we have seen, lives in decency and comfort; not so the other half. South of the holdings of the Gary Land Company lay a large tract, which was quickly seized by land speculators who undertook to provide shelter for the vast majority of Gary's unskilled laborers. Hundreds of ramshackle houses, generally wood, occasionally brick or stucco, were thrown together. Some accommodate a single family, others two families; still others are two story structures of indeterminate capacity, twenty five to thirty feet wide, a hundred or more feet long, with a room for a saloon or a small store on the first floor front. For the most part, these structures make little provision for either health or safety. Few of these houses are without boarders, and the boarding houses frequently receive both day and night shifts. Scattered about these subdivisions, but located principally along Broadway, were 178 saloons, numerous cabarets and dance halls. Thus the con-

ditions under which Gary's "other half" lives leave much to be desired.

The different schools reflect the contrast just portrayed. The Emerson and Jefferson schools serve the Gary Land Company district; of persons under twenty one years of age in the Emerson and Jefferson sections of this district, 44 and 54 per cent., respectively, are native white of native parentage. The Froebel school serves the workers' section to the south;[1] of the youth from which it is recruited, 87 per cent. are of foreign stock—69 per cent. come of foreign parents, and 18 per cent. were born under a foreign flag.[2] (Figure 5.)[3] Of the foreign stock of the Froebel section, 86 per cent. come from Austria, Hungary, Russia, Italy, and Greece, i.e., southeastern Europe, while only 5 per cent. come from western and northern Europe and Canada, and 9 per cent. from all other countries. (Figure 6.)[4] This concentration of southeastern European peoples in an essentially unrestricted and "wide open" section creates a social—hence an educational—problem of great difficulty.

[1]The Froebel district comprises the principal section south of the Wabash; Emerson and Jefferson are north, the one east and the other west of Broadway. Near the center of these respective districts are the Froebel, Emerson, and Jefferson schools. (See frontispiece map.)

[2]The school census of 1916 showed, for the entire city, 12,876 youth under twenty one years of age. Of these, exclusive of the colored, 5,854 were in the Froebel, 1,023 in the Emerson, and 2,506 in the Jefferson district.

[3]See page 13. [4]See page 14.

FIGURE 5

NATIVITY OF YOUTH UNDER TWENTY ONE YEARS OF AGE IN JEFFERSON, EMERSON, AND FROEBEL DISTRICTS

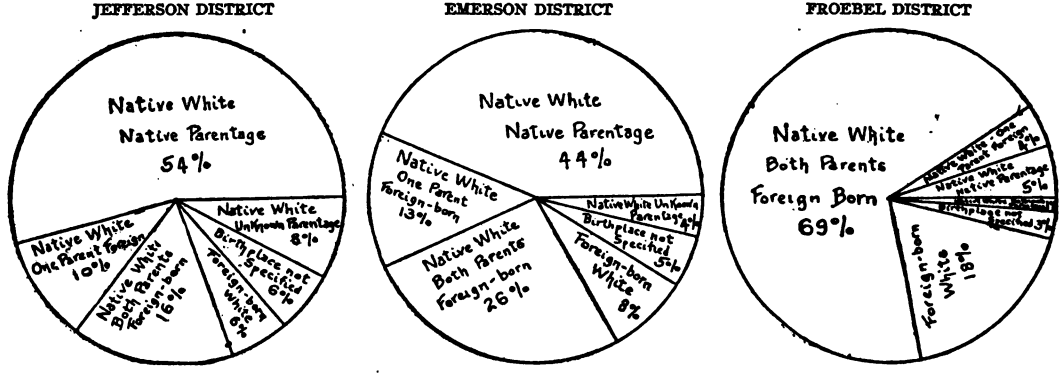
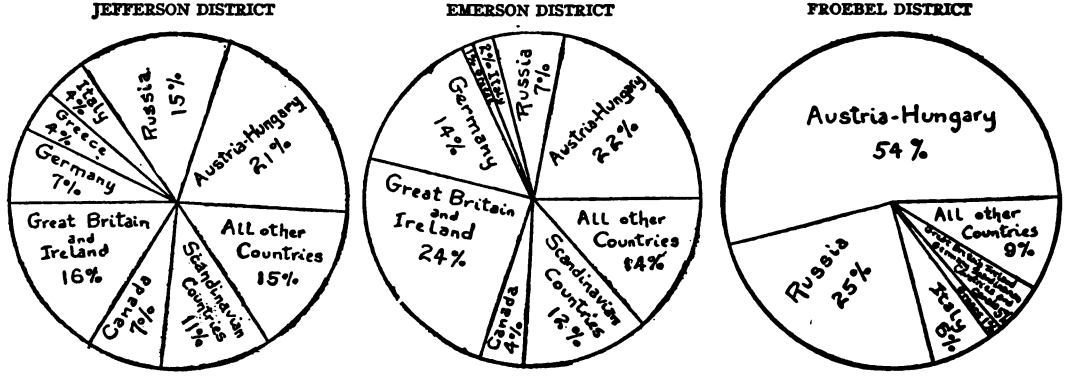


FIGURE 6

NATIONALITY OF FOREIGN BORN YOUTH, AND OF PARENTS OF NATIVE BORN YOUTH HAVING BOTH PARENTS FOREIGN BORN, IN THE JEFFERSON, EMERSON, AND FROEBEL DISTRICTS



It must be clear now that from the start the Gary schools had to deal with a new, rapidly increasing, and undeveloped population, mostly industrial in occupation, mostly foreign in origin. The field was, however, open for the development of an educational system adapted to local conditions. There were no antiquated school buildings,[1] there was no teaching staff with uniform, fixed habits. The very mobility and rawness of a large part of the population were from this point of view an advantage, for the patrons of the schools were without the educational traditions that might readily have resisted departures from common usage. The Steel Corporation has neither helped nor hindered. Its business relations have been limited to the sale by the Gary Land Company of the Jefferson school and sites for other schools; in matters of school policy, it has exercised no influence whatsoever. The school authorities thus enjoyed, and, as we shall see, in certain highly important respects took advantage of, the opportunity to break away from established practices.

Thus, while Gary would hardly have been selected deliberately as the fittest place for a considerable experiment in public education, nevertheless, from one point of view, perhaps no place could have been chosen where there were fewer obstacles and where conditions were more favorable to innovation.

Though the facts about the Gary schools will emerge

[1] However, two adjacent small towns have been annexed to Gary, and these possessed very meager school buildings, which are still in use.

as our study proceeds, it may be worth while to give in advance a brief historical and statistical summary. The Gary school organization began in September, 1906, school opening with one teacher, occupying a one room building. In October of the same year, Mr. William A. Wirt, at that time superintendent of the Bluffton (Indiana) schools, was appointed superintendent, although he did not take full charge until July, 1907. There are now in the system nine separate buildings and groups of portables; two of the buildings, Emerson and Froebel—the only permanent ones erected since Mr. Wirt took charge—are large and modern. There were employed during 1915-16 in the regular day schools two assistant superintendents, two medical inspectors, three supervisors, four principals, 136 teachers, and 11 shopmen, together instructing a total of 5,654 pupils. The combined total current expenditure for the regular day schools during 1915-16 was $203,682.38.

II. THE PLAN AND PLANT[1]

THE Gary schools can be properly understood only when they are viewed in the light of the general educational situation. For years, while the practice of education has in large part continued to follow traditional lines, the progressive literature of the subject has abounded in constructive suggestions of far-reaching significance. Social, political, and industrial changes have forced upon the school responsibilities formerly laid upon the home. Once the school had mainly to teach the elements of knowledge; now it is charged with the physical, mental, and social training of the child as well. To meet these needs, a changed and enriched curriculum, including, in addition to the common academic branches, community activities, facilities for recreation, shop work, household arts, has been urged on the content side of school work; on the side of method and attitude, the transformation of school methods, discipline, and aims on the basis of modern psychology, ethics and social philosophy has been recommended for similar reasons. No better formulation of this point of view has been made than that by Professor Hanus in his "Modern School":

[1]For detailed account, see report on Organization and Administration, by George D. Strayer and Frank P. Bachman.

"The education demanded by a democratic society today is an education that prepares a youth to overcome the inevitable difficulties that stand in the way of his material and spiritual advancement; an education that, from the beginning, promotes his normal physical development through the most salutary environment and appropriate physical training; that opens his mind and lets the world in through every natural power of observation and assimilation; that cultivates hand-power as well as head-power; that inculcates the appreciation of beauty in nature and in art, and insists on the performance of duty to self and to others; an education that in youth and early manhood, while continuing the work already done, enables the youth to discover his own powers and limitations, and that impels him through oft-repeated intellectual conquests or other forms of productive effort to look forward to a life of habitual achievement with his head or his hands, or both; that enables him to analyze for himself the intellectual, economic, and political problems of his time, and that gives the insight, the interest, and the power to deal with them as successfully as possible for his own advancement and for social service: and, finally, that causes him to realize that the only way to win and to retain the prizes of life, namely, wealth, culture, leisure, honor, is an ever-increasing usefulness and thus makes him feel that a life without growth and without service is not worth living."[1]

The conception set forth by Professor Hanus makes

[1]Hanus: The Modern School, pp. 3–4.

an instantaneous appeal. We are, however, in some danger of begging the question, when we call a curriculum modern, progressive, or enriched. Obviously, the traditional course of study is expanded or extended, whenever additions are made to it; whether or not it has been enriched depends on the results obtained as evidenced by a critical examination of school performance. Those who participated in the present study of the Gary schools were all hospitable to modern educational ideas, in the sense that they believe in the importance of developing new types of educational opportunity; but they also believe that every departure must render a satisfactory account of itself. The innovator must give a definite reason for his innovations and the results must bear him out. It is with a constant realization of the experimental nature of the undertaking that the present volume deals with the Gary schools as an effort to embody modern educational ideas.

Primarily, modernization is a question of the curriculum, in the broadest sense of that term. The first step in modernizing the school is to modernize the course of study, by the introduction of new subjects and activities, the elimination of other subjects or parts of subjects, the redistribution of emphasis, the change of school spirit and attitude. The moment, however, that such changes take place, it becomes necessary to make corresponding changes in the school plant and facilities, to provide a daily program of more extensive and complicated character with a different type of school organization, and to

procure a specialized staff competent to administer the richer and more complicated scheme. Most of the present volume will be devoted to the successive consideration of these details, since, given the Gary plan as a conception, upon them depends its success in execution.

Gary furnishes an admirable example of what expansion of the curriculum means. It offers in the elementary school instruction or opportunity of four different types: (1) academic work in the traditional school subjects,[1] (2) science, industrial training, and domestic arts,[2] (3) community or group work in the auditorium,[3] (4) physical education and play. A given class will every day devote two or three hours to the common school subjects, two hours to special work in shop or laboratory, an hour or two to play, and an hour to the auditorium. The school day thus runs seven hours, not counting the luncheon period. Of these seven hours, the ordinary school subjects get on the whole about the same amount of time as is allotted to them in conventional schools, though obviously they lose their exclusive emphasis, while science, drawing, and shop work, the auditorium, and physical training receive at Gary a degree of attention that is quite unprecedented.[4] Thus, the Gary curricu-

[1] I.e., reading, spelling, grammar, writing, arithmetic, geography, and history.

[2] I.e., drawing, science, sewing, cooking, manual training, forge, foundry, print shop, etc.

[3] This type of work is highly developed in only the four largest schools.

[4] These matters are all discussed more fully in subsequent chapters.

Emerson School Building

lum embodies the modern standpoint as above characterized, for it takes explicit account not only of the intellectual, but of the physical and social needs and possibilities of the child.

We have said that the moment the curriculum is modernized, corresponding facilities must be provided. The old-fashioned school, teaching the three R's, needed merely classrooms with little or no equipment. The course of study outlined above makes far different demands in the way of buildings and equipment. The Gary school plant is not indeed by any means of uniform excellence; but every part of it shows even amidst most unfavorable conditions a distinct effort to make possible something in the way of an expanded curriculum, while two of the nine schools—the Emerson and the Froebel—belong to the very best type of modern school construction and can hardly be paralleled outside our largest and richest communities. The Emerson school contains thirty classrooms, seven special rooms used for laboratory or studio purposes, shops,[1] rooms for domestic arts,[2] auditorium, gymnasium and swimming pool, and abundant playground space, well stocked with apparatus. The building contains both elementary and high school, but is mainly devoted to the former, since 64 per cent. of the pupils in attendance belong to the elementary grades. Viewed as an elementary school, the laboratory and shop equipment are

[1]For details see Chapter X.

[2]For details see Chapter XI.

probably not equaled in any other elementary school in the United States. The Froebel school is in its essential features a duplicate of the Emerson, though a different set of shops[1] is provided.

Of the remaining schools, the Jefferson, erected in 1907, was of conventional type, but has been remodeled so as to offer facilities for a certain amount of laboratory, shop, and auditorium work; the Glen Park and Beveridge schools, built by neighboring communities prior to their annexation to Gary, are inadequate buildings, in which only a few of the features of the Gary plan are attempted. The other four schools, situated in outlying districts, are mainly portables, destined before long to be replaced. It is, however, worthy of note that the entire system, including the makeshifts just mentioned, is characterized in greater or less degree by the effort to fill a lengthened school day with a diversified curriculum. The least favored school is in position to carry on, more or less well, nature study, gardening, physical education, recreation and play, while the schools that may be regarded as permanent parts of the plant are, all the circumstances considered, really notable.

This, then, is one side of the Gary plan—the enrichment of the curriculum and the provision of necessary facilities in the form of buildings, grounds, and equipment adjusted thereto. These things did not, it is true, originate at Gary, nor are they by any means limited to Gary; every one of them can be found in some form or

[1]For details, see Chapter X.

other somewhere or other. In almost every large city in the country efforts have been made, especially in the more recent school plants, to develop some of the features above mentioned. It is none the less true that perhaps nowhere else have the schools so frankly adopted the policy in question, and perhaps nowhere else does every school in the system so plainly endeavor to carry an extended course of study within the limits set by conditions.

It is, however, not to be supposed that the plan was applied in precisely its present form at the outset. Far from it. There has been a distinct process of development at Gary, at times such rapid and unstable development that our account will in some respects be obsolete before it is printed. When the Emerson school was opened in 1909, the equipment in laboratories, shops, museums, while doubtless superior to what was offered by other towns of the Gary type, could have been matched by what was to be found in the better favored larger towns and cities at the same period. The gymnasium, for example, was not more than one third its present size; the industrial work was not unprecedented in kind or extent; the boys had woodwork, the girls cooking and sewing. But progress was rapid: painting and printing were added in 1911; the foundry, forge, and machine shop in 1912. The opportunities for girls were enlarged by the addition of the cafeteria in 1912. The auditorium reached its present extended use as recently as the school year 1913–14. The Froebel school, first oc-

cupied in the fall of 1912, started with facilities similar to those previously introduced piecemeal into the Emerson. On the side of educational opportunities and facilities the present situation represents then the culmination of a development that has occupied the entire life history of the community.

The second characteristic feature of the Gary plan is the administrative arrangement by means of which an effective and economical use of the increased facilities is sought. The organization in question is commonly called the "duplicate" school. The term is really a misnomer, as we shall see, but its tentative use will assist the reader to understand the Gary plan of organization.

For the sake of clearness, it will be well to explain the theory of the so-called "duplicate" school by a simplified imaginary example:

Let us suppose that elementary school facilities have to be provided for, say, 1,600 children. If each class is to contain a maximum of 40 children, a schoolhouse of 40 classrooms would formerly have been built, with perhaps a few additional rooms, little used, for special activities; except during the recess (12 to 1:30) each recitation room would be in practically continuous use in the old line subjects by one and the same class from 9 to 3:30, when school is adjourned till next morning. A school plant of this kind may be represented by Figure 7,[1] each square representing a schoolroom, belonging to a particular class.

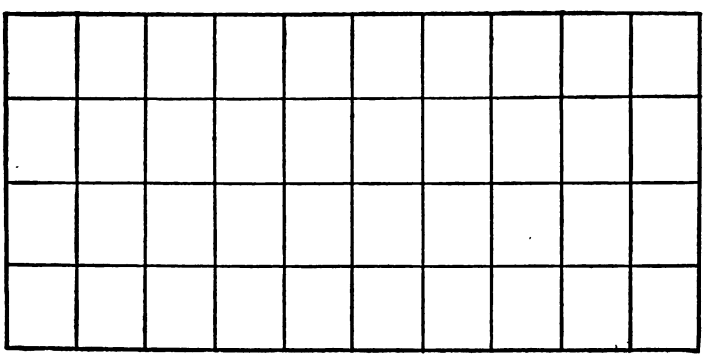
[1]See page 25.

The "duplicate" school takes care of its 1,600 pupils very differently. Instead of providing 40 classrooms for 40 classes, it provides only 20 classrooms, capable of holding 800 children; but it provides, in addition, playgrounds, laboratories, shops, gardens, gymnasium, and auditorium, also capable of holding 800 children. If,

FIGURE 7

REPRESENTS OLD-FASHIONED SCHOOLHOUSE

40 rooms for 40 classes, of 40 children each, i. e., facilities for the academic instruction of 1,600 children. A school yard and an extra room or two, little used, for special activities are also usually found.

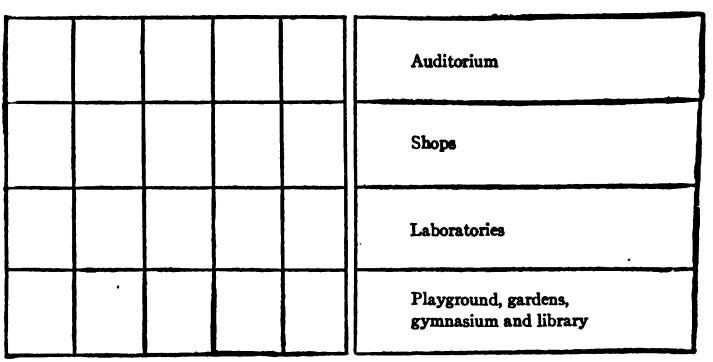


now, 800 children use the classrooms while 800 are using the other facilities, morning and afternoon, the entire plant accommodates 1,600 pupils throughout the school day; and the curriculum is greatly extended for all alike, since, without taking away anything from their classroom work, all pupils get the other activities also. A school thus equipped and organized may be represented by

Figure 8,[1] in which A represents 20 classrooms taking care of 40 children each (800 children) and B represents extra facilities, taking care of 800 children. As A and B are in simultaneous operation, 1,600 children are cared for, all being in attendance during the entire school day.

FIGURE 8
REPRESENTS THE GARY EQUIPMENT

A	B
Twenty classrooms for academic instruction of 20 classes of 40 children each (800 children) in the morning hours and an equal number in the afternoon (1,600 in all daily).	Special facilities, taking care of 800 children in the morning hours and an equal number in the afternoon hours (1,600 in all daily).



This method of visualizing the "duplicate" school serves to correct the misconception above mentioned. The plan aims to secure the intensive use of enlarged and diversified school facilities; yet it would be incorrect to say that 20 classrooms, instead of 40, as under the old

plan, accommodate 1,600 children. For though the number of classrooms has indeed been reduced from 40 to 20, special facilities of equal capacity have been added in the form of auditorium, shops, playground, etc. The 20 classrooms apparently saved have been replaced by special facilities of one kind or another, under an organization that uses both simultaneously.

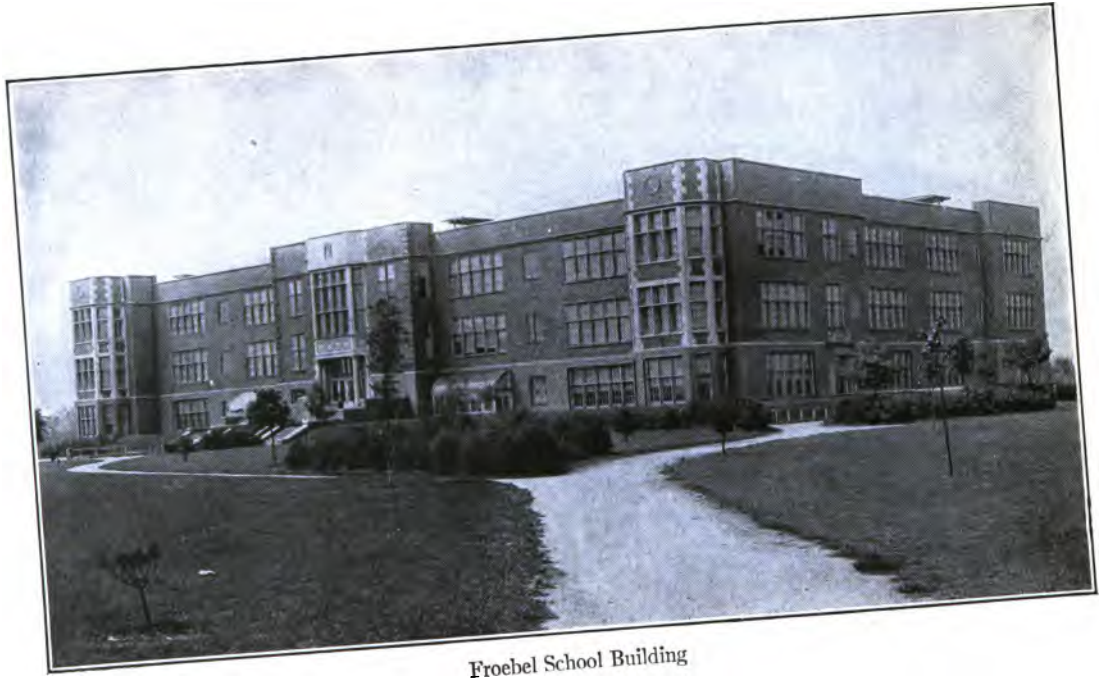
The extended curriculum and the new type of organization therefore support one another. The social situation requires a scheme of education fairly adequate to the entire scope of the child's activities and possibilities; this cannot be achieved without a longer school day and a more varied school equipment. The "duplicate" school endeavors to give the longer day, the extended curriculum, and the more varied activities with the lowest possible investment in, and the most intensive use of, the school plant. The so-called "duplicate" school is thus a single school with two different types of facilities in more or less constant and simultaneous operation, morning and afternoon.

Though the point is one to which we shall shortly return for a fuller discussion, it is perhaps worth while to call attention in this connection to the schematic nature of the preceding discussion. We have assumed that the capacity of regular classrooms is exactly equal to the capacity of special facilities and that intensive use means fairly constant and simultaneous use of both types of facilities. We shall discover that this is not strictly the case; that is, if the program is controlled by

educational principle rather than administrative convenience, the two types of facilities are not necessarily exactly equal in capacity, and there is a certain amount of inevitable wastage in the use of the special facilities.

It is nevertheless true that the Gary plan is economical as respects the use of elaborate facilities. But the sense in which the word is used requires explanation. Nothing could of course be more economical than the old-fashioned school in which each room is occupied all day long by the same class. That is, from the standpoint of economy, a bookish school, organized by classes, cannot be surpassed. When, however, the curriculum is expanded so as to include science, shop work, and other activities, the conventional type of school organization is ill adapted. The Gary plan of organization appears, as will be shown, to utilize such facilities with less waste than any other type of organization yet suggested.

Though the plan is economical when viewed in the light of the opportunities offered, it sprang from educational considerations, not from considerations of economy or convenience. There was no problem of congestion at Gary; nor was the town seeking to reduce expense. The duplicate organization is simply an intelligent attempt to make efficient use of varied facilities—classrooms as well as shops and laboratories. Obviously, the more efficiently facilities can be used, the more pupils a given plant will handle and the lower will be the per capita cost at which each child will enjoy the particular



Froebel School Building

advantages offered to him. But though the plan lends itself to the relief of congestion, and though, as we shall see, equal educational opportunities can probably not be obtained so cheaply on any other basis, the conception itself is in its origin educational—not administrative or financial. As such, it represents a distinct contribution to educational organization.

III. ORGANIZATION[1]

WE HAVE pointed out that the Gary plan is characterized by two features: (1) an extended curriculum, with facilities to correspond, (2) a peculiar type of school organization, devised for the purpose of operating efficiently and economically the more complicated program. In the present chapter we shall endeavor to show how the extended curriculum is converted into a daily school program and how the new type of organization procures an effective and economical use of school facilities.

The Gary elementary curriculum provides, as has been stated, four distinct types of training: (1) academic work, that is, instruction in the three R's, geography, and history; (2) special work, that is, science, shop work, and domestic arts; (3) physical training and play; (4) auditorium activities, including choral singing, individual performance on violin or piano, dramatic and other group exercises. In subsequent chapters we shall consider the amount and quality of instruction in each field; for the present we are concerned simply with the making and operating of the daily time schedule.

[1]For detailed account, see report on Organization and Administration, by George D. Strayer and Frank P. Bachman.

The manner in which the four different types of activity are combined in a daily class schedule may be illustrated by the program of a primary grade at the Emerson school:

8:15— 9:15	Language and numbers
9:15—10:15	Handwork and nature study
10:15—11:15	Play and physical training
11:15—12:15	Luncheon
12:15— 1:15	Handwork and nature study
1:15— 2:15	Language and numbers
2:15— 3:15	Auditorium
3:15— 4:15	Play and physical training

The class in question has its school day of seven hours divided as follows:

Ordinary academic work, two hours;
Special work (science, shop, domestic arts), two hours;
Play and physical training, two hours;
Auditorium, one hour.

At a higher level, the following program of a fourth grade class shows the types of work done in the successive periods:

8:15— 9:15	Academic work	12:15—1:15	Academic work
9:15—10:15	Special work	1:15—2:15	Special work
10:15—11:15	Academic work	2:15—3:15	Physical training
11:15—12:15	Luncheon	3:15—4:15	Auditorium

This class has a day made up of three hours of academic work, two hours of special work, one hour each of physical training and auditorium.

What is true of the types of work at the Emerson school

is true of the Froebel, Jefferson, and Beveridge schools, and in a measure true of the very smallest Gary schools. The following schedule of a primary class at the 24th Avenue school shows this:

8:45— 9:10	Music	1:00—1:45	Play
9:10— 9:30	Literature	1:45—2:05	Nature study
9:30—10:15	Play	2:05—2:30	Drawing
10:15—10:45	Numbers	2:30—2:45	Writing
10:45—11:00	Phonics	2:45—3:00	Phonics
11:00—11:30	Reading	3:00—3:30	Reading
11:30—11:45	Language	3:30—3:45	Spelling
11:45— 1:00	Luncheon	3:45—4:00	Language

The plant of the 24th Avenue school consists of five portables and an old one room rural school building. There are two kindergarten and five first and second grade classes. Yet these primary classes go to three different teachers and have three separate types of work: (1) the usual primary academic instruction; (2) special work, including literature, music, drawing, nature study; and (3) play.

A moment's consideration of the fourth grade program above given will indicate the problem and almost inevitably suggest the manner in which it has been solved.

The class in question has an hour of academic work with a regular grade teacher the first thing in the morning in, let us say, room 29. The next hour the class has special work, let us say nature study, in the nature study laboratory, for which purpose the class obviously vacates room 29 and leaves the grade teacher with whom it spent

Library Room—Emerson School

the previous hour; the third hour is given to academic work of other kinds, for which it goes to another grade teacher in, let us say, room 20; after luncheon it continues its academic work, for which purpose it may go to room 29 or to room 20—in either case, using only one of the two rooms it has occupied in previous academic periods. Special work—this time presumably in a shop—carries the class somewhere else in the following period; physical training leads next hour to gymnasium or playground; and the final hour is spent in the auditorium. In the course of the day, the class will almost necessarily have occupied two, perhaps three, different academic classrooms, a laboratory, a shop, the gymnasium, and the auditorium.

It is clear that if room 29 and room 20 and the teachers occupying them are required by this class only two or three hours in the day, some other uses must be found for both rooms and teachers during the rest of the day; that is, rooms must be occupied and teachers employed by other classes at other hours, since during these hours the fourth grade class which we are following is busy elsewhere—in shop or laboratory or playground. In shops and laboratories the same condition prevails—the given class spends an hour in the woodworking shop, another hour in the nature study laboratory; obviously other classes must precede and follow in both, and what is true of the rooms and shops and laboratories and instructors needed by the class in question is equally true of all other rooms, shops, laboratories, and teachers.

What has this fourth grade class actually been doing? Hour after hour it has changed rooms and changed teachers, in order that it may recite or work in rooms specially adapted to the purposes for which they are used under teachers specially qualified to conduct the several exercises. Instruction is, in other words, organized on the departmental basis. Instead of assigning each class to a classroom teacher who conducts instruction in all the branches in one room continuously occupied by the same class, the departmental plan involves the use of several teachers for each class, each of the several teachers being in charge of one subject or related group of subjects; and every class circulates among the rooms, shops, and laboratories in carrying out the details of its day's program. The departmental plan, with rotation of classes, necessarily accompanies expansion of the curriculum, since no single teacher can possibly teach so many diverse subjects and no single room can possibly contain the different kinds of apparatus and equipment required for several kinds of subject or activity. Departmentalization thus ought to secure more highly specialized teaching and a more nearly continuous use of elaborate school facilities than can be otherwise secured.

The device itself is of course not new. In American colleges work is "departmentalized." There is a teacher of Latin, a teacher of mathematics, a teacher of physics, not a separate teacher of each class in all subjects; and classes move from room to room in order to meet their teachers in succession. In recent years departmentaliza-

tion has spread from the college into the high school, until nowadays well organized high schools and latterly the upper grades of elementary schools are often "departmentalized," i.e., organized with special teachers for the several subjects, rather than with one teacher for each grade. The innovation at Gary lies in the extension of the device into the lower grades of the elementary school.

If teachers and facilities are to be thus employed, it follows that different classes must pursue their studies and activities in different orders of succession. Instead, therefore, of the fairly uniform order of subjects which obtains in conventional schools, Gary exhibits an almost endless variety of combinations. Conventional schools are inclined to start the day with classroom work, to be relieved after an hour or two by play or exercise. At Gary, one class starts its day's work with academic lessons and ends with play; another completely reverses this order, starting with play and closing with classroom work.[1]

The arrangement just described is, in popular phrase, said to keep "all school facilities going at full capacity all the time." This is, however, not strictly true. How nearly the scheme can come to attaining continuous and complete use of school facilities is indeed a nice question. First as to capacity: A simple old-fashioned schoolhouse is used to the limit of its capacity if there is a class in

[1]The table, page 36, exhibits the programs of four classes, all involving different time arrangements.

DIVERSITY IN PROGRAM SEQUENCE

SCHOOL HOURS	A 2D GRADE CLASS	A 4TH GRADE CLASS	A 6TH GRADE CLASS	AN 8TH GRADE CLASS
8:15	Physical training	Academic work	Auditorium	Special work
9:15	Auditorium	Special work	Physical training	Special work
10:15	Special work	Academic work	Special work	Academic work
11:15	Academic work	Luncheon	Special work	Luncheon
12:15	Luncheon	Academic work	Luncheon	Academic work
1:15	Physical training	Special work	Academic work	Academic work
2:15	Special work	Physical training	Academic work	Physical training
3:15	Academic work	Auditorium	Academic work	Auditorium

each room every hour of the school day. Thus, if the schoolhouse contains forty classrooms, there would be forty classes, each occupying its home room all day long, with an intermission for recess and an occasional period for the boys at manual training and for the girls at cooking and sewing. The capacity of the plant would be the sum of the capacity of the several classrooms, viz., 1,600 pupils, and it would be used to capacity during the entire school day. The real capacity of a complex plant like the Emerson school is not, however, simply the sum of the pupil capacity of the several classrooms, shops, laboratories, etc., but is highly variable, depending on the program and the kind of class combinations employed. Thus, for example, the auditorium of the Emerson school has a capacity of 764. If a program is constructed which

fills the auditorium hourly—and to do this very dissimilar classes would have to be brought together—the Emerson school plant will have a greater capacity than under a program which brings into the auditorium hourly—or less frequently—smaller, but more homogeneous, groups. The same is true as regards gymnasium, shops, etc. If care is taken to keep gymnasium groups relatively small and homogeneous enough for effective individual as well as group work, the capacity of the gymnasium and with it the capacity of the school shrinks; if gymnasium groups are large and heterogeneous, total plant capacity is increased. If the shops are full every hour, there are rooms available elsewhere, and plant capacity is increased; if younger children assist as helpers, the rooms which they vacate can be used by others, and thus plant capacity is increased; if, on the other hand, children are not employed as helpers, they must be cared for elsewhere and total capacity is by so much reduced. Obviously, therefore, while an old-fashioned plant has a readily calculable capacity, a complicated plant may accommodate a greater or smaller number of pupils, according as this, that, or the other program is followed. Judgment and administrative skill of a high order are required to steer a safe course.

A similar situation exists as respects continuity of use. One room in the old-fashioned schoolhouse is used just as long as another; all rooms are indeed continuously in use all day long, be the day five hours or six. The Gary situation is more complicated, partly because of the

new facilities, like the auditorium and the gymnasium, and partly because the school day is seven hours for pupils and eight hours for the plant. If we assume six hours as a normal school day for a regular teacher, while the school day for the pupil is seven and for the plant eight hours, classrooms can still be used for the entire plant day if a few extra teachers are employed, even though no teacher works more than six hours a day. But if a laboratory is to be used for an additional hour or two daily, a second instructor is likely to be needed, a step which would entail disproportionate expense. Practically, therefore, when the plant day is eight hours, auditorium, shops, laboratories, that is, all special facilities, must be idle at least two hours a day, or one fourth of the time. Equally continuous use of all facilities is therefore practically impossible, if the school day extends beyond six hours; it is difficult to attain even with a school day of six hours, unless there is unusual regularity in the number of classes in the different grades. Nevertheless, the Gary type of organization procures a larger use of modern facilities and of a modern plant than the common type of organization, which requires a room and a teacher for each class and allows regular rooms to be idle when special facilities are in service.

IV. ADMINISTRATION AND SUPERVISION[1]

THE management of a system of schools conducted on the Gary plan is obviously a highly complicated affair. Despite the fact that the success of such a system depends very largely on effective management, it is not easy to tell precisely what the administrative and supervisory arrangements of the Gary schools are. At the head stands the superintendent. The superintendent of schools in an American city has usually both business and educational duties; directly as well as through assistants he carries out the provisions of the law and the orders of the board of education in respect to all matters involving business, and, in the same way, both directly and through assistants, exercises general control of educational policies—meeting supervisors and the teaching staff for conference, calling for examinations and reports, and, as occasion offers, visiting classrooms and laboratories, now for the purpose of making an inspection, again to satisfy himself as to the quality of some special classroom procedure, or the competency of particular individuals. The activities in progress are so many, even in a small system, that no superin-

[1]For detailed account, see report on Organization and Administration, by George D. Strayer and Frank P. Bachman.

The supervisor of the industrial and household arts, as stated before, also looks after repairs for the entire system, and oversees some of the new constructive work. He is in and out of the several shops and even the cooking and sewing rooms almost daily and knows in a general way what is going on in every shop. He also meets with the shopmen two or three times a year for an evening's discussion of their problems.

The school principal is an executive or administrative, rather than a supervisory, officer. He has, indeed, little to do with the educational side of the school. After organizing his school in consultation with the superintendent and assistant superintendents, he looks after the building and grounds, meets parents, handles special attendance and discipline cases, orders books and supplies, and makes reports to the superintendent; he also arranges the programs of teachers and supplies substitutes, holds weekly teachers' meetings after school hours, and occasionally visits classes; but he has no responsibility for the quality of the teaching. Records of enrollment, of promotion, and of scholarship come to his office, but the responsibility for what pupils do and for their promotion belongs to the teachers and general supervisors.

These supervisory arrangements are hardly calculated to meet the unusual problems that arise in a situation as complicated and novel as that at Gary. Supervision of the kind above described is not likely to determine whether departures from conventional practice do or do not make good, nor is it likely to overcome the obstacles

arising from the quality and antecedents of the pupils. In the course of these pages, these statements will be more than once justified. But it is worth while in this connection to record a few instances of administrative and supervisory laxity, such as tend to obscure or defeat the demonstration of some of Gary's innovations.

We have referred to the fact that young children are regularly detailed to act as "helpers" or "observers" to older pupils engaged in shop or laboratory work, while older pupils frequently take charge of classes, assist in keeping records, correct papers, etc. This practice is defended on the ground that participation in such responsibilities is educative, since it reproduces an important human relationship. But does it work? As we shall see in subsequent chapters, our own investigations suggest, in the main, a negative answer. Would it work if efficiently controlled? That, of course, no one can yet say. A striking though not essential characteristic of the Gary system is thus imperiled because its operation has not been carefully watched.

Again, we have called attention to the unusual sequence of studies sometimes followed. We have pointed out that class schedules are so arranged that one class will play in the early morning and do its work in the early afternoon, while another class—or the same class another term—reverses the arrangement. Now, is there any reason why children should not play in the early hours of the morning and do their classroom work in the early hours of the afternoon? Gary assumes and

believes that there is no objection. Is there? No one really knows. The question lends itself, however, to experimental inquiry. Given classes might readily be carried for a series of years alternating the former arrangement with the latter, while others are carried with the common order of studies. A series of graphs might show whether the level of class work is affected by the factor here under discussion. Or, perhaps some other experiment could be devised for the purpose of determining the question. Similar questions should be asked in reference to the wisdom of extending departmentalization into the lowest grades. In any event, these are experimental problems to be worked out coöperatively by the teachers and supervising staff; but supervision in this sense—the very type required by a system rich in novelties and possibilities—has not been instituted.

One more illustration may be employed. Diversity of facilities and activities coupled with the unusual length of the school day makes for flexibility of program. Gary indeed believes that its program is more nicely adjusted to the individual child than is the case elsewhere. To what extent and in what sense is this true? The term "flexible" is properly applied to leeway used in order to defer to a particular child's need or opportunity. A child may be backward or unusually capable; a "flexible" curriculum places him accordingly. Flexibility has nothing to do with accident, caprice, or instability, all of which are hostile to the formation of good habit. The Gary organization lends itself to individual adjustments,

Art Studio—Emerson School

but whether or not they are wisely made depends on administrative supervision. Thus, for instance, a seventh grade class (No. 44) in the Froebel school contained many weak pupils in unquestionable need of individual consideration and attention. Its official spring program was as follows:

8:15	Gymnasium (play) or library
9:15	Music
10:15	Arithmetic
11:15	English
12:15	Luncheon
1:15	Auditorium
2:15	Shop (boys); Cooking or sewing (girls)
3:15	United States history

The entire class of 31 pupils recited together in arithmetic at the scheduled time. Only two other subjects, gymnasium and English, were pursued by all members, but in neither of these branches were they all in the same class. Twenty three took no music, seven no history, and four did not attend the auditorium. On the surface, these variations might be interpreted as representing real educational adjustments. In point of fact, they were not adjustments to serve the interests of particular pupils or to secure their regular advancement, but merely chance arrangements, the product of loose administration and supervision.

The most surprising variations occur in the 9:15 and 2:15 periods. At 9:15 the class is scheduled for music. At that time, thirteen pupils were in the gymnasium, seven were taking music, one arithmetic, two shop, six cooking or

sewing, and two drawing. At 2:15 the boys were supposed to be in shop and girls in cooking or sewing. Actually, eight went to gymnasium or library, one to music, seven to shop, nine to cooking or sewing, five to drawing, and one to history. Again, the official program calls for only one period a day in each of the several studies; and yet fourteen pupils took two hours of gymnasium or library and two took three hours. Twelve pupils did double and one treble duty in practical work. All told, there were thus not less than fifty four deviations from the official class program, but only three were to afford additional academic instruction—one in arithmetic and two in English. All persons concerned—teachers, principal, and children—were questioned about these changes. The principal, whose written endorsement is required, had no recollection of the reasons for them and no record of them. Although the pupil's Program Card reads, "No dropping of class nor change of program will be permitted without the written consent of the assistant superintendent," the children had not consulted that official. A teacher employed to advise with children about their practical work could throw no light on the situation. Register teachers,[1] supposed to have on file "Permission to Change Class" slips, had barely a half dozen of them—not one completely executed—and were, therefore, almost wholly unaware of what had happened. The truth is that, in a few instances, the

[1]Seventeen register teachers kept the records of this one class, each doing a part of the work.

regular teachers, on their own authority, had excused pupils from their classes, but in most instances children had dropped what they did not want and elected what they wanted, provided they could get it, without consulting anybody. Prolonged inquiry showed clearly that with five or six exceptions all the changes were the result of childish caprice exercised without restraint.

Nor does class 44 stand alone. Out of eleven additional Froebel and Emerson classes similarly tabulated, in six there was not a single pupil taking double work in any of the regular studies, and in the remaining five, not more than a single pupil in any one of them. In no class were there as many deviations from the official program in special work as in class 44. Still, such deviations as there were, were rarely educational adjustments; they were due mostly to the child's own choice, or to accidents of organization at the time.

The upshot of our consideration of the Gary plan and the Gary organization may be put into a few words. The Gary plan is as large and intelligent a conception as has yet been reached in respect to the scope and bearing of public education. The administrative scheme by which Gary undertakes to carry out the plan is ingenious to the point of originality. The arrangements for controlling and supervising the operation of the scheme are, however, defective; there is, therefore, reason to fear that the execution of the plan will fall short of the conception.

V. COURSE OF STUDY

IN DESCRIBING the Gary plan and explaining the way in which the daily class programs are constructed, frequent reference has already been made to the subjects taught and the special activities pursued. The present chapter will, however, give a more detailed account of the course of study, with special reference to the ordinary school subjects.

The Gary schools—like the schools of all other Indiana towns—are guided by the state course of study. They teach the usual school subjects and "such other branches of learning and other languages as the advancement of the pupils may require and the trustees from time to time direct." Fortunately, the official course of study is "not intended to limit the teacher's personality or freedom," and teachers are expressly enjoined to adapt their instruction "to the needs of their particular schools and communities."[1] On the other hand, the state prescribes a uniform series of textbooks for all schools. Though the Gary teachers exercise freedom in using these prescribed texts and are liberally supplied with additional material, the fact remains that the legally desig-

[1]Uniform Course of Study for the Elementary Schools of Indiana, Bulletin No. 17 of the State Department of Education.

nated text may hamper a competent and progressive teacher.

At Gary, as elsewhere, it has been impossible, for reasons that must be clear, to provide uniform school facilities. The nine schools therefore differ greatly in size, situation, and equipment.[1] The West Gary school, consisting of two portables with an open playground, must necessarily offer a course of study quite different from that of the Froebel school, with its modern equipment, gardens, and playgrounds. The West Gary program is therefore made up more largely of the three R's, geography, and history, though a certain amount of music and drawing is given, the last named including nature study and handwork.[2]

The programs of the Froebel, Emerson, and Jefferson schools[3] contain the usual studies—the three R's, geog-

[1]The different schools in the system are:

SCHOOLS	NUMBER OF TEACHERS	TOTAL ENROLLMENT 1915–16	AVERAGE DAILY ATTENDANCE
West Gary	2	46	30
Clarke	2	52	39
Ambridge	3	146	92
24th Avenue	7	347	254
Glen Park	8	315	224
Beveridge	14	683	520
Jefferson	20	1,011	728
Emerson	33	967	742
Froebel	58	2,087	1,503
Total	147	5,654	4,132

[2]Table III, Appendix D, page 218.

[3]Table IV, Appendix D, page 219.

raphy, history, nature study, manual training, household arts, drawing, music, and physical training. Over and above these subjects attention should be directed to the separate courses in botany, zoology, physics, chemistry, mechanical drawing, and shop work in great variety—the shop work including woodwork, forge, foundry, machine practice, sheet metal, printing, painting, and shoe repairing. Certain unusual terms occurring on the program, such as "helpers" and "teachers' assistants," "expression," "application," and "auditorium," have already been more or less fully explained. "Helpers" and "teachers' assistants" are pupils distributed in groups of four or five among the shops, laboratories, and classes in the regular subjects to observe, study, or assist. "Expression" denotes instruction meant to develop power in oral language and taste for good literature, as contrasted with "reading," which refers simply to the mechanics of the reading process. "Application" represents a similar division of labor; teachers in the fundamental branches teach the formal or technical phases of their branches, whereas in "application" children are supposed to be drilled expressly in applying what they have learned. Perhaps the most marked departure from common practice is the "auditorium," with its hourly assemblage of several classes in a single group for entertainment and general instruction by means of moving pictures, lectures, and other exercises.

The studies and activities included in the program above given are grouped in two divisions: (1) "regu-

lar work," pursued continuously by all children and comprising reading, language, spelling, writing, arithmetic, geography, history, "auditorium," and physical training; and (2) "special work," under which are understood handwork, freehand and mechanical drawing, nature study and science, music, "expression," "application," manual training, shop work, and household arts. No class pursues at one time all the "special work" offered in its grade or in the course as a whole. For example, during the spring term 1915–16, only seven of the twelve first grade classes in the three schools under discussion had nature study; only two of the ten fifth grade classes had freehand drawing.[1] The other classes in these grades may have had these branches during some other term.

In theory, all children in the lower grades are supposed to have an equal amount of nature study, handwork and freehand drawing, music, "expression," and "application"; and all children in the upper grades, an equal amount of drawing, science, and shop work, though the kind of drawing and science studied, and the particular shop entered, may differ with the pupil, the class, and the school.

Equality of opportunity in respect to these special activities in a given school is obtained by rotating children from one special activity to another. By means of properly arranged cycles, pupils are enabled to pursue in succession four or even five special activities,

[1] Table IV, Appendix D, page 219.

each for a given number of weeks. For example, in the Jefferson school, 1915–16, the first four elementary grades rotated more or less regularly through nature study, handwork and drawing, music, "expression," and "application"; the upper grades rotated through nature study, drawing, and cooking or sewing for girls, and shop for boys.[1] In the Froebel school, the four lower grades were scheduled for manual training, drawing, and nature study one half of the year, and for music or "expression," and "application" the second half; the upper classes rotated through science, drawing, and shop work.[2] The Gary practice thus concentrates the attention of the pupil on a particular activity for a definite period. Instead, for example, of having a certain subject or activity twice a week for a half year, he pursues it every day for a shorter period. The scheme presents no peculiar difficulties in respect to organization; it is advantageous from the standpoint of economy, and educationally, as far as any one knows, may be as effective as any other arrangement.

The three large Gary schools, with which we are primarily concerned, differ considerably as to the kinds of special activities provided. The science work is practically the same in the Froebel and Emerson schools—both offering nature study and separate courses in zoology, botany, physics, and chemistry. But here the similarity stops; in the practical activities Emerson

[1]Table V, Appendix D, page 221.

[2]Table VI, Appendix D, page 222.

Mechanical Drawing Room—Froebel School

offers poultry raising, forge, foundry, machine shop, and printing; Froebel, manual training, cabinet making, shoe repairing, painting, plumbing, sheet metal, and printing. Jefferson, in contrast, has a single shop, where children from the third grade up get a composite of manual and industrial training. These differences in special advantages arise from various causes. In the first place, no single school, no single group of school children can possibly exhaust the special activities which possess educational value. While an expanded curriculum endeavors to make a varied appeal to different types of effort and interest, it cannot make every possible appeal. There is therefore no reason for uniformity. Inasmuch, also, as the shops serve production and repair as well as education, those shops have been installed which could be made more or less self-supporting, and for this same reason shops have not been duplicated.

Shop work, science, and auditorium exercises are of course found elsewhere than at Gary. The Gary program does not therefore differ from other school programs because Gary offers these activities and the other schools do not.[1] Gary differs simply in the prominence which it gives to the activities in question in the elementary school, in the unusual facilities provided for them, and in the emphasis placed upon them. Other schools have auditorium exercises; but nowhere else does the auditorium play the part it plays at Gary. Other

[1]Table VII, Appendix D, page 224.

schools teach science in the elementary grades; where are the elementary schools that give botany, chemistry, and physics in such admirable laboratories? Other elementary schools provide manual training; but where else in one school is there work in machine shop, forge, foundry, printing, and gardening? It is the number and the excellence of these opportunities that give to the Gary course of study its novelty.

One other feature should be included at this point viz., the library. The Gary plan in its full form contemplates an effort to cultivate in children a discriminating reading taste, and to teach them how to use a library. Conditions are favorable to this effort. The public library maintains branches at the Emerson and Froebel schools; there is also a branch in the Beveridge school section, and Jefferson is within a short walk of the main library building. All classes of these schools are supposed to have a library period once a week or once in two weeks, the period being taken from physical training and play. The library authorities have outlined a simple graded course of eight years, consisting of five lessons a year, on the use of books and the use of the library. In addition, children are introduced to good reading and they are assisted with such reference work as their regular class teachers may have assigned to them. The Jefferson school, however, is the only one that carries out the plan with anything approaching completeness. No other school gives library instruction. At Beveridge the children attend the library regularly, using the hour

for reading. At Froebel, although assigned to the library, the children go at irregular intervals, while at Emerson there is no assignment, the library being used chiefly by high school students as a study room.

The precise amount of time given at Gary to each subject—regular or special—is not readily made out. The schools are organized on the basis of sixty minute periods. As the sixty minute period is, in the lower grades, at least, too prolonged for, say, nature study, the teacher may devote part of the hour to the three R's, or to drawing, thus lessening the time nature study actually receives. On the other hand, some kind of music—group, class, or solo singing, the school orchestra, or the victrola—almost invariably makes up a part of the auditorium exercises. Besides the school orchestras of Emerson and Froebel, which meet regularly for practice, pupils who are to take part in the orchestra receive individual lessons on the violin, etc., particularly on Saturdays. Music, therefore, receives at Gary a greater emphasis than the formal time allotment would indicate. Again, the schools do not all schedule the same amount of time for the special activities; there is, also, as will appear later, some discrepancy between the amount of time scheduled and the amount of time given.

A similar—and perhaps even more marked—uncertainty exists as to the amount of time really devoted to the more common subjects. These subjects are supposed to occupy at least two hours daily in the lower, and not less than three hours in the upper, grades. But teachers

are not held to a uniform and exact division of time, with definite periods for reading, spelling, language, writing, arithmetic. They divide a period as in their judgment seems best; and, as their ideas differ, the time actually allotted to each of the regular studies varies from teacher to teacher.

In consequence of these difficulties, the time table constructed by us for the Gary schools[1] does not represent daily practice as closely as the official schedules of conventional systems. Still, the average number of hours ascribed to the several studies and activities indicates—at least, roughly—common Gary practice, and depicts with sufficient exactness for general purposes the central tendencies of the schools, although, as we shall see, there are some marked deviations from these time averages.

When studies and activities are serially arranged on the basis of the total number of hours assigned to them by the schedule, general school practice is distinctly challenged.[2] Physical training and play, drawing and manual training and the auditorium, or the special subjects, all take precedence over the conventional subjects. Physical training and play get twice the time assigned to reading and three times the amount assigned to arithmetic; science gets as much time as geography and history combined. In fact, fifty five per cent. of the total time of the elementary school schedule goes to physical

[1]Table VIII, Appendix D, page 226.

[2]Table IX, Appendix D, page 228.

training, play, shop work, auditorium, music, and German; 35 per cent. to the three R's—reading, language, spelling, and arithmetic. The schedule is, however, not strictly carried out. For example, during 1915–16, all classes in Jefferson and the first four grades in Froebel and Emerson were scheduled for two hours of physical training and play daily, and, with a few exceptions, all classes from the fifth grade up in Froebel and Emerson were scheduled for one hour. But these assignments—particularly those in the lower grades—represent opportunities for physical training and play rather than time actually given to them. In the first place, children are not held to regular attendance. Frequently, though they are scheduled for two hours of physical training daily, attendance upon one period is optional. This is almost invariably true when the two hours come together at the beginning or at the end of the school day. In the second place, time needed for outside activities, such as library and religious instruction, special home work in music, drawing, or assisting at home, is usually taken from the physical training and play assignment. While it is therefore statistically correct to report the schedule allotment as 2,697 hours to physical training and play, 1,600 hours (one hour daily throughout the elementary school course) approximate more nearly the time given. Even so, the time allowance is decidedly unusual.

The Gary schedule does not get this liberal time allowance for special activities by reducing the time

allotment of the common or fundamental branches; it gets the additional time by lengthening the school day. The usual school day in the fifty cities of the country having a population of 100,000 or more is five hours.[1] In the one hundred and twenty cities with a population of 25,000 and less than 50,000 (the population group to which Gary belongs), the average school day is approximately five and a quarter hours; forty seven of the hundred and twenty have a five hour session, fifteen are content with less, and only thirty six exceed the average.[2] The official school day at Gary, in the three schools under discussion,[3] is for children seven hours—from 8:15 to 4:15, with sixty minutes for luncheon.[4] The lengthened school day provides the additional time needed for the special branches. Meanwhile, the common branches continue on the whole to receive as much time at Gary as elsewhere. Fifty representative cities[5] average 5,388 hours of instruction in the ordinary studies, as compared with 5,048 hours at Gary, a total difference of 340 hours spread over eight years. The three R's are allotted 3,904, as against 4,022 in fifty cities. Gary's departure

[1]Table X, Appendix D, page 229.

[2]Table XI, Appendix D, page 229.

[3]Beveridge also has a seven hour day, but in the other schools the day is six hours.

[4]Moreover, the playgrounds at Froebel, Emerson, and Jefferson, and the gymnasiums and swimming pools at Froebel and Emerson, are open until five o'clock.

[5]Table XII, Appendix D, page 230.

is thus almost wholly in the field of the special activities; the 2,732 hours gained by lengthening the school day keep the children off the streets and make time for physical training, shop work, drawing, and the auditorium.

The different schools, however, show considerable deviations from the foregoing rankings and reported time allotments.[1] For example, the average allotment to fourth grade reading in Froebel, Emerson, and Jefferson during the spring term 1915–16 was 292 minutes per week. All classes in Jefferson had more; all in Emerson, less; in Froebel there was one above the average and three below. The minimum assignment, 150 minutes, goes to 4A classes in Emerson and Froebel, and the maximum, 450 minutes, to a Froebel 4C. Relatively greater variations occur in eighth grade geography. One class had more, and four had less, than the average of 91 minutes per week. A Froebel 8A having the equivalent of a single weekly forty minute period, and an Emerson 8B enjoying five such periods, represent the extremes. The allotments to the other fundamental studies reveal similar differences. So far as these time differences grow out of a conscious effort to adjust instruction to the needs and abilities of different groups of children, they are profitable. But it is clear that not infrequently they arise at Gary—as in other school systems—from lack of proper adjustment or from the caprice of individual teachers.

[1]Table XIII, Appendix D, page 232.

We have been occupied up to this point with the elementary course of study. A word will suffice for the high schools.

Gary has two high schools, one at the Froebel, the other at the Emerson school, the buildings and equipment serving simultaneously elementary school and high school purposes. The attendance totals 547 pupils, of whom 331 enrolled at the Emerson, 216 at the Froebel.[1] The programs of the two schools follow closely the uniform state course,[2] which does not differ materially from the ordinary high school course found throughout the country. Emerson offers only seven units of work in excess of the minimum state requirements, of which three units are in foreign languages; Froebel barely reaches the minimum.[3] Despite the unusual facilities in the way of shops and laboratories, the high schools do not offer to high school boys or girls more than a single year of well organized instruction in the industrial and

[1]OFFICIAL GARY HIGH SCHOOL ENROLLMENT, 1915–16

SCHOOLS	FIRST YEAR	SECOND YEAR	THIRD YEAR	FOURTH YEAR	TOTAL	GRADUATES JUNE, 1916
Emerson	143	103	51	34	331	31
Froebel	130	37	32	17	216	16
Total	273	140	83	51	547*	47

*Our tabulation on the basis of individual record cards (Table XXXI, Appendix D, page 251) varies slightly from this report.

[2]Table XIV, Appendix D, page 234.

[3]Table XV, Appendix D, page 235.

Nature Study Room—Froebel School

household arts. In addition to the conventional work, there is a commercial course, open to both boys and girls.

Having students enough to justify a separate high school, does Gary do well to use the same building and equipment for both an elementary school and a high school? Something can be said on both sides of the question. It can hardly be regarded as economical in respect to space or money. High school teachers, seldom having full high school schedules, are assigned to elementary school classes. Equipment essential to high school work is either idle, or is used by young children, even if not to best advantage. Among the compensating gains, however, are the democratic spirit developed between elementary and high school pupils, the familiarity of elementary pupils with high school opportunities, and the knowledge which high school teachers acquire regarding elementary pupils, their methods of work, and their achievements.

On the elementary course of study described in this chapter, one general comment naturally suggests itself. The fear has not infrequently been expressed by devotees of traditional education that modernism in education may signify merely the "practical," "utilitarian," "vocational," as opposed to the cultural or ideal. The breadth and variety of the Gary elementary curriculum ought to remove this apprehension; for it is more broadly and variously cultural in its scope than any merely bookish curriculum can possibly be. It contains the necessary

instrumental studies—writing, reading, spelling, and arithmetic—as well as the traditional cultural subjects, geography, history, and literature. Science and industry add further opportunities to develop the child and to give him an education that will bring him into contact with life at all its vital points.

VI. TEACHING STAFF

THE program described in the preceding chapter calls for (1) grade teachers, (2) an unusual number of specialized teachers to take charge of the departmentalized subjects and special activities of the elementary schools, and (3) high school teachers. The total number of teachers employed at Gary increased from 4 in 1906–7 to 147 in 1915–16.[1]

In selecting elementary teachers, the Gary authorities have endeavored to procure graduates of a standard normal school, but they have not always reached this level. Of the 45 regular elementary teachers in service at the end of the school year 1915–16, 13 fell short in this respect, 20 were normal school graduates, while 9 had attended college without graduating and 3 had finished a full college course.[2] A majority of the less well

[1]NUMBER OF TEACHERS EMPLOYED

	NUMBER OF TEACHERS EMPLOYED DURING:									
	1906–7	1907–8	1908–9	1909–10	1910–11	1911–12	1912–13	1913–14	1914–15	1915–16
Men	3	4	8	8	16	16	17	25	30	35
Women	1	11	24	40	78	89	84	101	120	112
Total	4	15	32	48	94	105	101	126	150	147*

*Includes 11 shopmen.

[2]Table XVI, Appendix D, page 236.

equipped have entered the staff recently; some of them are local high school graduates, beginning to teach in the elementary schools with little professional preparation. In so far as the staff is trained, the training is that obtainable in ordinary normal schools throughout the country. The 12 kindergartners are a more homogeneous group; all have had the equivalent of a standard course, that is, after graduating from high school they have had at least two years of specialized training.[1]

As has been pointed out, Gary draws no hard and fast line between the elementary school and the high school. The two schools are housed in the same building, and, although regular elementary teachers do not give high school instruction, high school teachers usually instruct some elementary classes; the chemistry teacher takes grade classes in chemistry, the physics teacher, grade classes in physics. Of the 26 regular high school teachers, 19 have completed a full four year college course or more. Of the 7 with non-standard credentials, 2 hold degrees from small colleges, 3 have had some college work, 1 is a normal school graduate, and 1, although never going beyond the high school, has had a broad business experience.[2] A majority of them have also had some professional training at colleges or schools of education.

In addition to kindergarten, regular elementary and high school teachers, Gary employs 50 special teachers. The teachers of handwork and nature study deal only

[1]Table XVII, Appendix D, page 237.

[2]Table XVI, Appendix D, page 236.

with elementary children, principally of the lower grades; all others—teachers in charge of auditorium work and expression, music, manual training, household arts, free-hand drawing, mechanical drawing, and physical training—instruct, in varying proportions, both elementary and high school pupils. It is needless to discuss in detail the training of these special teachers. Suffice it to say that, with few exceptions, they are well fitted, although there are, as is common elsewhere, surprising differences in the length and the character of the preparation of those giving the same kind and grade of instruction.[1]

Eleven shopmen, not classified as teachers by the Gary authorities, complete the corps. Engaged on general repair and construction, such as forge, foundry, and plumbing, they were chosen primarily on the basis of trade experience, which ranges from four to twenty five years;[2] practically all are union men.

Besides trained teachers, the Gary schools utilize high school pupils as assistants in one way or another. In the year 1915–16, 127 pupils were thus used, chiefly in the three largest schools, Emerson, Froebel, and Jefferson. Their duties, though various, are mainly routine; they grade papers, prepare material for younger children, tell stories, play games, assist pupils over difficulties, keep the class register, and occasionally take charge of a class and give instruction.

As a rule, Gary employs not only trained but experi-

[1] Table XVIII, Appendix D, page 238.

[2] Table XIX, Appendix D, page 239.

enced teachers. Academic and professional preparation being equal, preference is given to the seasoned instructor. To be sure, beginners are engaged, but probably not in greater numbers than is usual elsewhere, for in most large cities the teaching force—at least, of the kindergarten and elementary school—is recruited directly from the local training school. Of the 132 teachers of whom we have record, only 23, or 17 per cent., were without experience when first employed[1] and not exceeding 6 of these beginners were engaged in any one year. Together, the 132 had had an average prior experience of five years, a half having had less than four years, and a half having had more. Indeed, if the Gary authorities have erred, it is on the side of employing teachers with too much classroom experience behind them, for 20 per cent. of the staff had had a service record of ten years or more before coming to Gary.

Though Gary teachers are as a body experienced, they are all new to Gary.[2] A single decade measures the length of the service of the oldest; less than half of them have been in Gary four years, and, if we include the 11 who have been there less than a year, the 8 who are completing their first year, and the 33 who are completing their second year, 40 per cent. may be called newcomers. The unusually large proportion of newcomers is a consequence partly of the recent origin and rapid growth of the city, and partly of the frequency of resignations. Ob-

[1]Table XX, Appendix D, page 240.

[2]Table XXI, Appendix D, page 241.

viously this fact must be taken into account in judging the Gary schools. Teachers so recently brought together from many different sources cannot be rapidly molded into a unified staff.

The annual loss is unquestionably heavy, ranging from 14 to 23 per cent. of the entire staff.[1] How this compares with that of school systems in cities similar in size and character we do not know. Whether comparatively high or low, the causes operating at Gary to this end are apparently the same as elsewhere. Of the losses between 1912 and 1916, 30 per cent. were due to marriage, 27 per cent. to taking positions in other systems, 5 per cent. to illness, and 17 per cent. to remaining at home, returning to school, and going into business, while 21 per cent. are said to have been dropped from the service.

Teachers' contracts are drawn on a monthly scale, with ten months of continuous service expected, but not guaranteed.[2] For convenience in computing salaries, we use the rate for a ten month year. The principals of the Emerson and Froebel schools receive $2,000 a year, Jefferson pays $1,300, and Beveridge $1,100;[3] these salaries include regular week day and Saturday service, but there is extra pay for night and summer work. None of the other schools has a principal, although there is a teacher in each who acts as principal and receives an additional $100 for such service ($90 for the regular day

[1] Table XXII, Appendix D, page 242.

[2] In 1913–14 the regular day schools were in session only nine months.

[3] Table XXIII, Appendix D, page 243.

school and $10 for the Saturday school). This additional compensation is included in the rate at which such teachers are reported to be employed.

The kindergartners are at the foot of the salary ladder. The median wage is $750, with salaries varying from $600 to $950.

Regular elementary teachers fare better, their median rate being $800. Six receive the minimum salary, $600 a year; only four receive as much as $1,000.

Special teachers are better paid. The median for the group rises to $900, with $600 at the lower and $1,200 at the upper extreme.

The annual pay of regular high school teachers is still higher, the median mounting to $1,100, more by $100 than the salary of the best paid elementary teachers. The range is, however, wide, salaries running from $800 to $2,000, with five receiving $1,300 or more.

In most cases, shopmen receive union wages. When these are reduced to a ten month rate, the median for the group is $1,000, which brings them next in salary to the regular high school teachers.[1]

[1]The salary schedule according to which the teachers were paid in 1915–16 is as follows: GRADE TEACHERS

	FIRST YEAR PER MO.	SECOND YEAR PER MO.	THIRD YEAR PER MO.	FOURTH YEAR PER MO.	FIFTH YEAR PER MO.
Class A	$60.00				
Class B	70.00	$75.00	$80.00	$85.00	$ 90.00
Class C	80.00	85.00	90.00	95.00	100.00

Head grade teachers are paid an additional $10.00 per month. Special teachers: Approximately the same as grade teachers. High school teachers: Minimum, $75.00 per month; maximum, $130.00 per month; annual increase, $10.00 per month; heads of departments, $150.00 per month. Auditorium head teachers: An assistant principal is selected for auditorium work and is paid an additional salary of $10.00 per month.

Gary teachers have unusual opportunities to add to their regular day school pay. They may teach Saturdays, receiving one twentieth of their regular monthly wage per day. In the night schools they can earn as much as $3 a night. During the summer most of the shopmen are busy with repairs and construction, and the two months' summer school engages at full pay about one third of the staff. Finally, the Sunday school gives employment to a few.

It would be impossible for Gary to carry on these outside activities without calling heavily on regular day school teachers. The pay schedule shows what they may earn in this way. For example, a teacher receiving a regular salary of $600 for day work may earn in a single year as much as $330 more, a $900 teacher may earn in all $1,320, a $1,200 teacher, $1,710, and a $1,500 teacher, $2,100.[1]

All but 27 of the force in service at the end of 1915–16 did work in addition to the regular day school.[2] Ninety seven taught also on Saturdays, 79 at night, and 49 in the summer school. The additional work of 27 was confined to Saturdays and of 18 to the night schools. But 30 worked both Saturdays and at night, and 24, Saturdays, at night, and during the summer, while 3 were now and then on Sunday duty besides.

The amount of extra service varies. For example, 83 teachers, exclusive of the shopmen, served in the regular

[1]Table XXIV, Appendix D, page 244.

[2]Table XXV, Appendix D, page 245.

day school the full 200 days. Of these, 17 did no additional work.[1] The extra service of the remaining 66 ranged from 4 to 132 days, half of them working less and half working more than 19 days. In a word, these 66 teachers were on duty during 1915–16 the equivalent of not less than eleven months.

The pay for this extra service materially increases the total earnings of the teachers. To illustrate: The average regular salary of the 13 high school instructors serving in excess of 200 days was $1,201; their total income averaged $264 higher, or $1,465.[2] The increment from extra work averages about 15 per cent., but there are teachers who increase their incomes by as much as 40 to 60 per cent. of their salaries. Nevertheless, in making salary comparisons, these additional earnings should not be regarded as a part of the Gary salary schedule.

In most respects the conditions of service that obtain elsewhere in Indiana prevail at Gary. A county or state certificate is required; contracts are made for a single year. The state provides a pension system, which the Gary teachers, however, have not as yet accepted. No allowance is made by the state for sickness or other enforced absence, but Gary teachers can partially recoup themselves, since they receive the difference between their own salary and the amount paid to a substitute.

The only important novelty in the conditions of service at Gary is the length of the school day. In the smaller

[1] Table XXVI, Appendix D, page 246.

[2] Table XXVII, Appendix D, page 247.

Garden—Glen Park School

schools this is six hours, from 9 to 12 and from 1 to 4. In the four larger schools the day runs from 8:15 to 4:15, less an hour for luncheon. The physical training teachers give seven hours daily to instruction, shopmen, eight; all other teachers give six hours and they have in addition a seventh hour, which is supposed to be a free period, but which is usually devoted to the making of records and reports. Thus a majority of the regular teachers work seven hours a day at school, although approximately a third of them are excused, on request, by the superintendent from attendance during the seventh hour. Of 120 other cities scattered through the country having, like Gary, a population between 25,000 and 50,000, the average school day is five and a quarter hours. Eight of the 120 have a six hour day; one runs six and three quarter hours.[1] It should be remembered, however, that where there is a short school day, teachers as a rule give time after school to records, reports, and outside duties, making for them approximately a six hour day. It should also be noted that there is a decided movement throughout the country, notably in New York and New Jersey, toward lengthening the school day in cities.

Several different problems are involved in the question of the length of the school day; the extended use of the building is one question, the interest of the pupil another question, the strain upon the teacher still another. Financial and social considerations alike recommend that school buildings should be used longer each day

[1]See Table XI, Appendix D, page 229.

than is now the case. There are equally valid arguments for a lengthened school day for pupils, especially in cities, provided, of course, that, as at Gary, varied activities of a non-bookish character are provided. Whether a seven hour day for teachers is desirable is a different matter. Accurate data bearing on the health and vigor of teachers working seven hours a day are not available. If, however, one may trust daily observation running through several months, one would be inclined to regard the seven hour day, particularly when teachers have additional night work and Saturday work, as of doubtful wisdom. It leaves too little energy for the outside interests which ought to refresh and invigorate the daily lesson; and it probably tends to a mechanical handling of classroom work. There is, however, no reason why the school building and the pupil should not have longer hours without equally increasing the length of the teacher's day. In fact, one advantage of the Gary organization is that the day for the building may be one thing, that for pupils another, and that for teachers still another. Indeed, the teacher's day can be made of any length whatsoever, though, of course, the shorter the teacher's day, the more teachers are required and hence the larger the budget for teachers' salaries, or the smaller the salary per teacher.

VII. CLASSROOM INSTRUCTION[1]

WE HAVE now discussed the main factors that determine the content and quality of classroom instruction—organization, supervision, course of study, teaching staff. We learned that the course of study is, in the first instance, necessarily that outlined by the state; that the members of the teaching staff do not differ essentially in education, training, and experience from the corresponding types of teacher in other systems; finally, that, while the Gary system is devoted to a modern conception of education, supervision has been too uncertain to mold the teaching staff into an effective organ for concerted effort toward its achievement.

A moment's consideration will, however, show that under even the most favorable conditions an entire school system can only gradually promote radical reform in the substance and manner of classroom instruction.

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[1]This chapter deals with the teaching of reading, composition, spelling, arithmetic, geography, and history in the elementary schools, and with English, French, German, mathematics, Latin, and history in the high schools; science, shop work, etc., are dealt with in special chapters and special reports.

A tabular statement showing the amount of observation of classes on which the present chapter is based is given in Appendix A, page 210.

The course of study may indeed be expressed in terms so general that large leeway is left to the grade teacher; principal and supervisors may be favorable to innovation; the fact remains that at this day the conventional training of the teachers and the conventional character of available textbooks in most subjects, generally speaking, handicap wide departure by an entire system from established practices.

In the case of Gary, certain special factors already mentioned should also be taken into account. The population being foreign, the children come in large numbers from homes where no English or very poor English is spoken; the increase in population is taking place so rapidly that there is a steady infiltration into the schools of new and crude, even though ultimately promising, material; finally, the teaching staff, expanded to meet the pressure described, is composed of teachers of such varied training and experience that unity of purpose is extremely difficult to obtain.

One gathers the impression that, carried along by its splendid conception of public education but misled, perhaps, by the ease with which an adequate material embodiment was so swiftly attained in the Froebel and Emerson plants, Gary failed to appreciate the extreme difficulty of converting new educational principles into new educational practice. It would be both unjust and unwise to make too much of this error, for it does not disprove the fundamental soundness of the scheme or destroy its stimulating influence on public education.

The truth is that anything like general success was at the outset impossible, because of the lack of proper tools and proper agents. Had this been clearly perceived, doubtless details would have been more carefully watched and thus a larger measure of practical success would undoubtedly have been attained. In the present and succeeding chapters the actual teaching at Gary will be described in the effort to present an objective account of the instruction offered, as respects both content and quality. In view of the fact, however, that serious defects will be pointed out, the authors drop this word of caution lest the real scope, courage, and intelligence of the Gary vision be obscured by the errors made in the first attempts toward its realization.

We have said that thoroughgoing reform can proceed only as a new body of teaching material is developed and teachers of a new type are trained. Fortunately, the situation has in recent years been ameliorated by the diffusion among teachers of sounder ideas as to values and methods and by the publication of a large body of supplementary school texts in the principal classroom subjects. Even teachers trained in the most cut and dried fashion have in large numbers been aroused to the futility of abstract drill in grammar and arithmetic and to the uselessness of a mechanical grind in geography and history; and though the textbooks in common use continue to contain much irrelevant, uninteresting, and indigestible detail, the intelligent and resourceful teacher is not usually so strictly and unsympathetically "supervised"

that she is kept from supplementing or partly supplanting the textbook by utilizing materials and paraphernalia rich in content and in emotional value. While, as we have said, it would be unfair at this stage to expect any school system to organize its classroom instruction on a consistently modern basis, it is entirely fair to demand that the formal methods and sterile material of a past generation should be noticeably relieved by the introduction of a fresher spirit and by the use of concrete and fertile subject matter.

In so far as classroom instruction is concerned, the Gary schools show the confusion inevitably incident to transition, but aggravated unquestionably by ineffectiveness of central control. The conventional school framework has been shattered; new ends, new activities have been freely introduced; directly and indirectly, the inadequacy or unsoundness of certain common school aims has been emphasized. Self-control, initiative, resourcefulness have been very properly set up as essential characteristics of training for life in a democratic society. Unfortunately, many of the teachers have not been at Gary long enough to catch the spirit; some who sympathize with its spirit have not been effectively assisted to abandon or modify their former habits; in consequence, despite some excellent work, which we do not overlook, many teachers at Gary are probably not doing so well as they have previously done under other conditions.

These statements are particularly true of the regular

primary teachers. They devote two hours daily to work in the three R's, but departmentalization tends in a measure to interfere with the direct use of literature, science, and games as means of making the three R's less formal and more appealing. The danger—never far distant—that the work of the primary teacher will be technical and mechanical is therefore increased at Gary. A teacher might, of course, even under this organization, so familiarize herself with what her pupils are doing in the special branches that she would be able to bring what they have learned in them to bear upon the mastery of the regular studies. Most of those observed were not doing so. Primary instruction too rarely radiated from a central topic, from which were derived the materials for reading, spelling, language, arithmetic, handwork, dramatization, and even science and music, each portion thus reënforcing every other part; it was more apt to be handled in separate compartments, arithmetic, language, reading being more or less independent of one another, with the result that much of the primary teaching was mechanical and slow. This was not, be it repeated, universally the case; but it was the rule, rather than the exception.

Take reading for an example. Some excellent instruction in beginning classes was observed. Appropriate stories about familiar objects were developed by the teachers and written on the blackboard for the children to read; phrase reading and natural expression received attention; the meaning of the new words selected for

mastery was conveyed through the use of the children's experiences, real objects, picture cards, and action; and well directed repetition through the use of the blackboard and picture word cards pressed home the desired word image. Such teaching represents the occasional "high points." More commonly appropriate preparatory work was slighted; inadequate emphasis was given to the meaning of new words and to the development of a well chosen reading vocabulary; the children imitated the standard of expression set by the teacher and under such conditions the reading became mere word naming.

Of the reading heard in the upper primary grades, some of it was good, but in the main it ranged from ordinary to poor. The selections were usually excellent, comprising the best of myths, fairy tales, fables, folklore, poems, and descriptive narrations of famous events and characters—that is, the best available material had been selected, but the teaching technique was often seriously at fault. The pupils of a room were, as a rule, divided into two sections, one reciting, while the other did seat or board work. The section engaged in reading occupied kindergarten chairs about the teacher. The children had seldom made any preparation; seldom did the teacher ask the subject of the lesson or seek to bring out the main theme. She merely directed the children to prepare silently the first sentence or paragraph. On the completion of this task, the pupils raised their hands; thereupon a pupil began. The teacher might ask a question to introduce the next story or paragraph, but more

frequently she called upon a child to read on; and thereafter the exercises became sight work. If pronunciation became too bad, the teacher might write the words upon the blackboard for drill. Little attention was devoted to meaning or use. Only once in the classes observed were children required to re-tell the story or to summarize the main points of the narration after the reading. Classes were usually dismissed without assignments, and even when assignments were made the teacher did not regularly give suggestions as to the preparation of the new lesson. The work was too frequently characterized by listlessness and indifference; after the first few minutes of the period only part of the class appeared to attend to the work in hand.

After reading, the time remaining to the regular primary teachers is taken up mostly with spelling, writing, and arithmetic. In spelling, common words chosen by the teacher from the daily life of the children and from their current school work were emphasized, and well selected lists were also supplied by the primary supervisor. Patience was exhibited in drilling children in the number combinations and in the fundamental processes. No small part of the drill in these subjects was carried on by helpers—children from the sixth, seventh, and eighth grades. By way of creating interest in drill, competitive devices were freely employed. For example, a competitive game was thus made of spelling: The teacher wrote the words on the blackboard—"snow," "cow," "foreign," etc. After the children had

studied these for a moment, the teacher called by turns, from the two sides into which the class had been divided, upon the children, who indicated by raising the hand that they were ready. The pupil signaled took his place before the class, with his back to the blackboard, and endeavored to pronounce and spell each of the words of the lists. The side which had the greater number of successes to its credit won the contest. The difficulty with these competitive devices is that the same aggressive children were always in evidence, while the timid and the children who are probably in greatest need of individual attention kept to their seats. Little was done toward using the more recently contrived methods for the teaching of primary spelling or primary arithmetic.

In the middle and upper grades some efforts to vitalize arithmetic were observed. To make the topic of stocks and bonds real, an upper grade teacher organized his class into a joint stock company for the time being. There is also displayed in the hall of Emerson some work showing the application of percentage to baseball club standings, and a graph of the temperature of a schoolroom at different hours of the day. But for the most part, in these grades, the best teaching of arithmetic seen was of the old-fashioned sort, where children are held rigorously to a mastery of processes and to the solution and explanation of problems of every conceivable kind. Few signs of the new arithmetic were noted. For example, two middle grade classes were learning liquid measure.

In the one, the teacher exhibited a gill, a pint, a quart, a half gallon, and a gallon measure. But there was nothing for the children to measure; they merely looked at the measures, observing their relative sizes. In the second class, the table of liquid measures was presented altogether as something to be memorized from the book. There were no measures for the children to handle and compare, nothing to measure, no appeal to experience, no mention of use.

In the higher grades a few teachers were doing well in reading. The selections, generally of excellent character, were studied seriously. Interpretive discussion preceded oral reading. Appreciation and taste were conscious objects of the instruction, and the selections were employed to present in concrete form the larger ideals of successful personal and community living. But the bulk of the reading in both the middle and upper grades was not of high quality. As in the primary grades, the pupils were too often listless and indifferent.

Periods devoted to history and geography were usually divided equally between so-called study—a form of silent reading—and recitation. There was no supervised study. Lessons were invariably assigned by pages or by general subject, mostly without comment by the teacher. The children read over the assignments chiefly with a view to finding the answers to the questions printed at the end of the section. At the end of the allotted study period, the recitation began. The teacher, with book in hand, put seriatim the above mentioned questions, occasionally add-

ing one or more on her own initiative. For example, if in history: "What was Jefferson's purpose in securing the passage of the Embargo Act?" "What was the Embargo Act?" etc. Or in geography: "In what part of the United States is New England?" "Name the states." "Which state is largest?" etc. The answers of the children were brief and deficient in detail; this, whether they remembered for the moment what the text contained or whether they read the answers from the open books before them. The teacher usually added very little; there was little or no class discussion, outside reading was seldom required. Some of the seventh and eighth grade geography and history, and almost all that of the middle grades, was indeed little more than a sight reading exercise.

As in the primary grades there was usually in the middle and upper grades too little connection between the different parts of a pupil's daily work. In part, this is due to the fact that in the higher grades the "fundamentals" are sometimes distributed among several teachers. Making clear to children the cross relations existing between studies is nowhere easy, and departmentalization rather increases the difficulty at Gary. But more could be accomplished than is now attempted. The teaching of arithmetic, for example, could take more account of what is going on in the laboratories, the shops, the cooking and sewing rooms; the influence of geography upon history could be more frequently pointed out. The main evidences of correlation noted were the effort to bring into the spelling lesson words common to the special and

practical activities; and a similar and sometimes remarkably successful effort to draw composition themes from the shops, the laboratories, and the gymnasium or playground. A really admirable paper on swimming, in which abundant material was systematically organized and clearly presented, is a case in point.

The generally meager and formal character of the classroom instruction may be in part due to the assumption that exercises in shops and laboratories, reading in connection with science, history, and industry will supply the vital elements which mere drill omits. To what extent this is the case will appear in the chapters dealing with the activities in question, and in the chapter describing the objective tests designed to measure skill in reading, spelling, arithmetic, and composition.

In a measure, excessive formality in regular classroom work may arise from the theory that an application teacher is provided, whose special concern it is to assist backward pupils and to place "before the children real problems of the type that the world of industry, business, and citizenship will place before them when they leave school." Without raising any question as to the wisdom of divorcing the child's learning of fundamental processes from the application of those processes, the facts at Gary do not bear out the theory of a separate application teacher. There were only four application teachers in the system during the spring term 1916, of whom one gave regular departmental instruction, while the remaining three confined their efforts to the lower

middle and primary grades. Observation of the work revealed nothing beyond the same kind of formal drill upon elements and processes that was observed in regular classes. Moreover, application teachers are handicapped by not knowing intimately the precise ground covered by the class teacher and the particular difficulties of the children in hand. The same amount of time could certainly be employed to better advantage in regular work of proper type.

It is not easy to make out how classroom instruction as a whole is affected by departmentalization. In the earlier grades excessive departmentalization may tend to separate into independent teaching units subjects which at that stage might better be presented by one teacher, constantly solicitous to connect activities one with another. On the other hand, it is doubtful whether in the middle and upper grades departmentalization is complete enough to procure real continuity in the teaching of the regular classroom studies. For in these grades pupils change teachers in the fundamental subjects on advancing from the third to the fourth grade, and also on passing from the sixth to the seventh. Unquestionably, the Gary type of program requires more departmental teaching than the conventional school, but efficient supervision and careful organization can alone secure for the pupil the advantages inherent in it.

Of the high school subjects, no departure from conventional handling was observed in mathematics. In the Emerson school the teacher of Latin had undertaken

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to relate the instruction in Latin to English and to everyday life and her efforts unquestionably aroused enthusiastic interest on the part of her pupils. In both schools, the spoken use of French and German was stressed; and general history was taught with conscious reference to the requirements of citizenship. But much the most important novelty was the work in English composition, already alluded to above.

Instead of short daily or weekly themes, an entire term was concentrated upon a single effort. The work was done not hurriedly at home, but deliberately at school. All the steps necessary to successful writing were taken in consultation with and under the direction of the teacher. A practical atmosphere surrounded the work, and it was executed as nearly as possible in the spirit of the professional writer. Free choice of topics was permitted, but these were carefully canvassed in order to decide whether they were of sufficient general interest, timely, and worth while. Pupils were taught how to assemble data, how to observe, how to use reference books and the library, and how to take, keep, and arrange notes. With the preliminaries out of the way, the original outline was revised for the writing. The first draft was freely made, without too much regard to choice of words, form, or organization. The teacher reviewed this draft with the pupil, leading him to discover for himself its weak places and discussing with him ways to improve them, leaving him to make the needed revisions. This procedure was repeated again and again.

The outcome was an elaborate essay into which the pupil had put himself and from the doing of which he had derived real training.

High school teaching was unfavorably affected by the practice of placing in one class pupils of different high school grades—a necessary expedient in the small high school. The tendency was marked in the special studies and activities; somewhat less so in the old line high school disciplines. Commercial classes almost always comprised pupils from each of the four high school years, special students of uncertain preparation, and even eighth grade children. To add to instructional difficulties, this promiscuous group usually pursued typewriting, stenography, and bookkeeping, all at the same time, under a single teacher. Mathematics classes were frequently made up of pupils from three different high school years; at times all took the same kind and grade of instruction; again each group had different work—for example, arithmetic and solid geometry, first and second term algebra. The same mixture of pupils from the different high school years occurred in Latin, modern languages, English and history. These promiscuous groupings and combinations are accounted for on the grounds of irregularity and economy.

The situation at Gary as regards instruction is thus confused. The newness of the city and of the enterprise and the ambitious scale on which the schools are projected not only account for some of the defects pointed out, but ought in fairness to be regarded as in some measure extenuating

them. It is, nevertheless, clear that, so far as the modern school involves the elimination of obsolete material and the vital handling of all material in the usual classroom subjects, Gary's contribution is not considerable. The modern attitude is indeed encountered here and there in almost every subject, but, while heartily encouraged, it is still exceptional and individual rather than characteristic and general. Under existing conditions the absence of efficient supervision cuts both ways. Teachers with ideas—such as the teacher of English whose work is described above—are not hampered by a supervisor who has different notions; on the other hand, less competent instructors working amidst difficult conditions are also left to their own devices. In the main, therefore, the teaching is of ordinary type, ineffectually controlled. There is nothing in the Gary plan that requires this; there is no reason why a school of the Gary type should not be well organized, well administered, and well supervised. Indeed, as we have already urged, the enrichment of school life inevitably results in complications which give added importance to good organization, good administration, and good supervision.

VIII. CLASSROOM TESTS[1]

THE judgments expressed in the preceding chapter embody the results of prolonged and impartial observation; nevertheless, it is perfectly fair to say of them that, after all, they represent opinion only. Some day, let us hope, it may be possible to replace such observations fully by measurements of an objective character. At the present time, expert opinion based upon inspection is in many respects our only means of estimating the value of educational procedure. In certain of the fundamental subjects[2]—e. g., handwriting, spelling, arithmetic, composition, and reading—we are, however, in position to measure performance by means of objective tests; and in these subjects tests were given in the four larger Gary schools—Froebel, Emerson, Jefferson, and Beveridge. In recent years these tests have been widely used. Unfortunately, however, they have not always been applied with equal care or under exactly the same conditions. In consequence, for purposes of comparison the results obtained cannot usually be taken

[1]For detailed account, see report on Measurement of Classroom Products, by Stuart A. Courtis.

[2]Practical tests were also given in shop work, household arts, physical training, and the sciences. These are discussed in the chapters dealing with the respective subjects.

at their face value. Moreover, there is in most subjects as yet no general agreement as to what constitutes satisfactory performance. Comparison should therefore be made with extreme hesitation, except in the simple handwriting, spelling, arithmetic, and reading tests for which something like a standard has been derived from scores made by large numbers of children. The few comparisons employed in this chapter are of this kind.

Handwriting may be tested in several ways. A child may be asked to do his "best," with the result that he achieves something quite different from his usual writing; or he may be left free to determine for himself the rate and quality of his writing—i.e., to exercise his "free choice"; or he may be called on to write a dictated passage—in which case the quality of the writing is conditioned by the rate at which the passage is dictated. Finally, specimens of handwriting may be secured from papers written for other purposes—a composition or an essay, for example, written by the child without knowledge that it may be used as the basis for a judgment on the quality of his handwriting. It is obvious that the various specimens of a single pupil's handwriting thus procured may differ considerably in merit. At Gary no effort was made to procure samples of a child's "best"; but the remaining three methods were employed, i. e., the child wrote a specimen as he pleased, he wrote from dictation, and specimens were obtained from compositions.

Between the average specimens taken from the compositions of eighth grade pupils and average specimens taken from the "free choice" test, in which children write as they please, there is practically no difference at all. Figure 9 represents this characteristic 8th grade product. That is, of the children in the last year of the elementary schools of Gary, half write as well as or better than the sample given in Figure 9,[1] and half write less well than this sample.

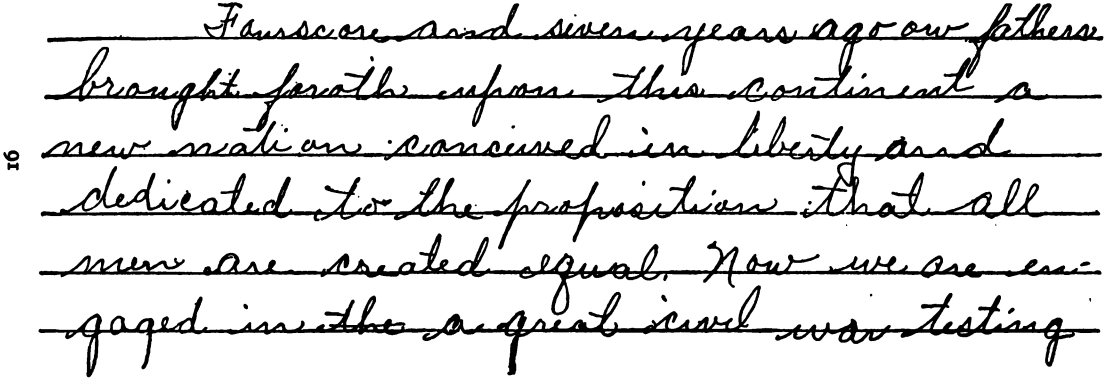
A comparison of the results obtained in successive grades shows that pupils learn to write faster without learning to write much better as they go forward through the grades. (Figure 10.)[2] Comparison with the results of similar tests in other cities must, of course, be made with caution, since the methods employed are so new and the factors to be controlled so many that different situations are not strictly comparable. With this qualification, it is perhaps still worth noting that, on the whole, when compared with those of other cities, Gary results in the free choice writing test are lower in quality. (Figure 10.) Apparently, the Gary children write more freely than other children, but pay less attention to the quality of their work. On these points the three different tests practically agree (Figure 11).[3] And no clear difference is to be made out as between the quality of the handwriting in the various schools at Gary, that

[1] See page 91.

[2] See page 92.

[3] See page 93.

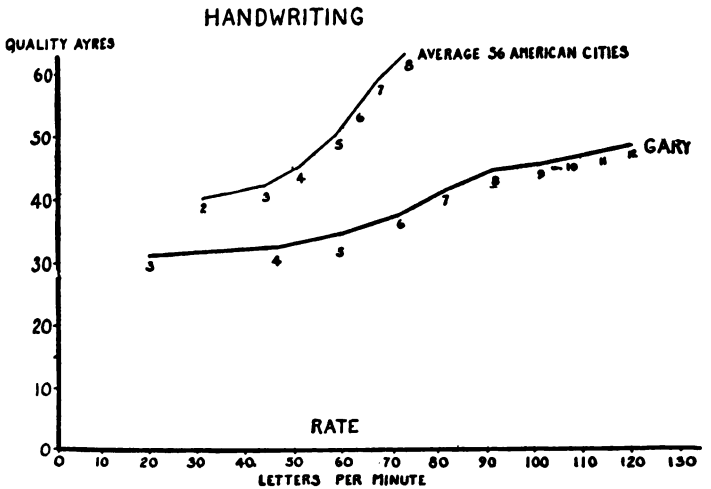
FIGURE 9
SAMPLE OF EIGHTH GRADE WRITING OF MEDIAN QUALITY



is, there is no certain evidence that one school does better or worse than another.

Spelling, like handwriting, was measured in three different ways. Carefully selected lists of words were used to test the pupil's ability to spell disconnected words—much as an old-fashioned spelling lesson was conducted; next, sentences were dictated at a definite rate so as to compel children to write without giving them too much time to think of spelling; finally, their

FIGURE 10
COMPARATIVE SCORES IN THE FREE CHOICE TEST

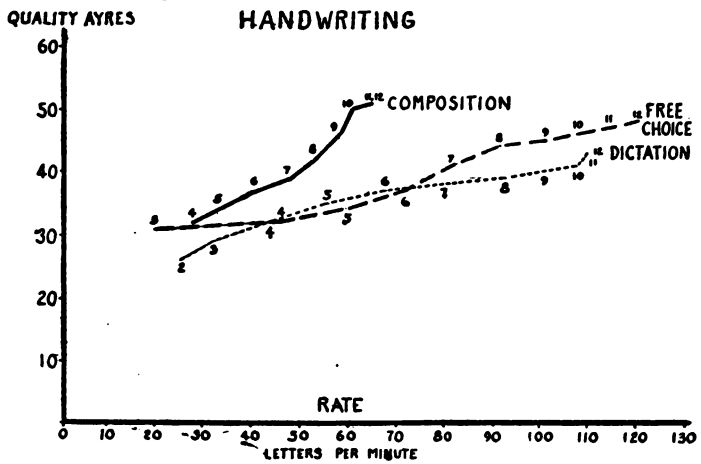


composition papers were marked as exercises in spelling. The conclusion reached as to the ability of Gary school children as spellers rests thus on three distinct types of objective evidence.

The list tests are so constructed that the words given, say, to the fifth grade are for that grade approximately as difficult as are the words given to, say, the eighth grade for that grade. Different grades ought, therefore,

FIGURE 11

RATE AND QUALITY SCORES IN THE THREE HANDWRITING TESTS



The graph shows that the free choice and dictation tests agree closely in both rate and quality; that the composition test was written at a much lower rate and with somewhat higher quality than the other tests.

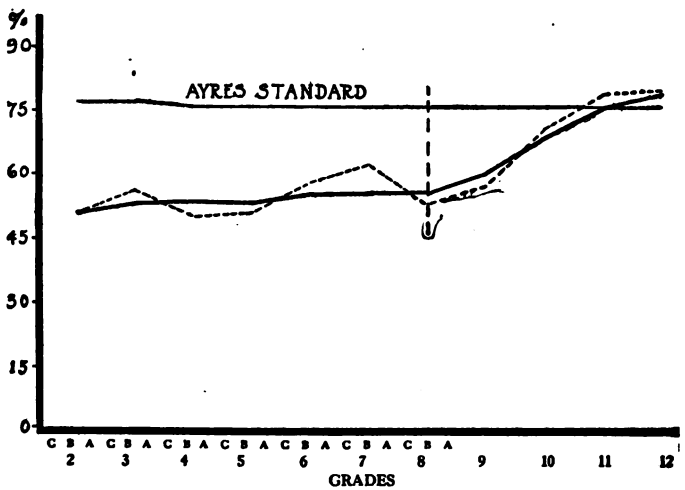
to do equally well on their respective lists. Previous studies indicate that, on the average, American school children in each grade, at the time of year the tests were given, may be expected to reach a score of 76 per cent. on the words appropriate to their respective grades. At Gary, the grades, taken all together, averaged 55 per cent.—a difference of 21 per cent. An innovation

was, also, tried. The list framed for the eighth grade was given to grades 9, 10, 11, and 12; with the result that by the end of the twelfth grade the words were spelled with 80 per cent. accuracy. It would appear, therefore, that, as thus tested, grade by grade, the Gary children spell less well than the children of the 84 cities on which the standard of 76 per cent. used above was based; on the other hand, those who remain through the twelfth grade reach and slightly excel the common eighth grade standard. (Figure 12).[1]

In order to measure the development of spelling ability from grade to grade, a dictation test was employed. Several sets of sentences of gradually increasing difficulty were used, each set being dictated to several successive grades; thus, Test 1 was dictated to grades 2, 3, and 4; Test 2, somewhat more difficult, to grades 4, 5, and 6, etc. The change in score noted from class to class thus indicates the extent of improvement. In general, the results of the dictation test confirm those of the list tests. The eighth grade score on the easy words for the grade was 69 per cent., on the difficult words, 50 per cent. In grades 2 to 4 the improvement shown in the two year interval was 41 per cent. For grades 4 to 6 it was but 34 per cent., from grades 6 to 8, 20 per cent., from grades 8 to 12, 33 per cent. In other words, the results show that improvement from grade to grade is small and relatively decreases as the difficulty of the words increases. This

[1]See page 95.

FIGURE 12
GARY SCORES IN LIST SPELLING TEST COMPARED WITH AYRES' STANDARDS



The scale along the base of the figure represents grades. The scale at the left of the figure shows average per cent. of accuracy of spelling. The solid line represents Gary scores (generalized). The dotted line represents actual grade averages showing variation from grade to grade. The light solid line represents Ayres' standards based upon results secured in eighty four American cities. The portion of the curve to the right of the vertical line represents results in the high school grades in which the same eighth grade words were repeated from grade to grade.

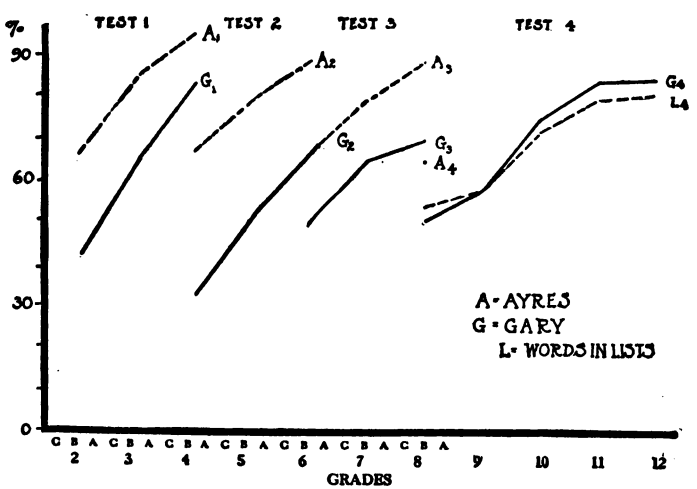
fact is shown graphically (Figure 13)[1] by the change in the slant of the development curves in the successive grades.

As a check upon the formal spelling tests, misspellings

[1]See page 96.

in papers written in the composition test were tabulated. The errors noted were of two sorts: slips, or trivial mistakes, such as the omission of "d" in the word "and"; and more serious misspellings, such as "peise" (piece). In the eighth grade papers, 27,610 words were used, and 720 misspellings occurred—or, omitting slips, 580. The general accuracy of the spelling was in either case very high—97 or 98 per cent., according as slips are counted or not—a result that conflicts with that of the two tests already described. Even if the fifty common words, used altogether 14,598 times, are omitted, the percentage of the remainder correctly spelled is still high (96 per cent.). The list thus abbreviated still contains many

FIGURE 13
RESULTS OF DICTATION TESTS



short and easy words, but it also contains some of the so-called "spelling demons"—words commonly misspelled by children everywhere and in all grades. Hence the meaning of the discrepancy between the list tests and the composition tests must remain a matter of speculation.

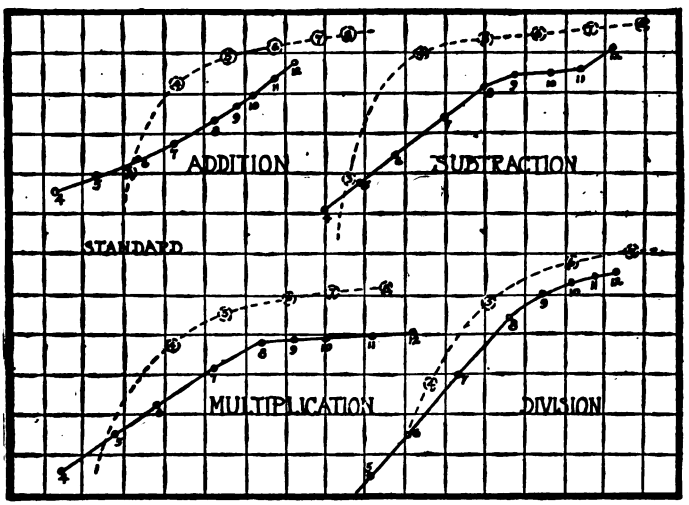
The products of training in arithmetic are many and of varying complexity. They range from such simple skills as addition and multiplication to such complex products as ability to reason in arithmetical terms. Measurement of the simple skills is comparatively easy, but just what constitutes a legitimate thinking or reasoning problem at each stage of school progress has not yet been determined. Accordingly, no reasoning tests were given at Gary. The skills selected for measurement were addition, subtraction, multiplication, and division of whole numbers and fractions. These abilities are at least fundamental for all arithmetical work, both in school and in later life.

Measurement of the skill of the Gary children in carrying out the four fundamental operations with the Courtis Tests, Series B, shows regular though small gains in both rate of work and in accuracy throughout the elementary grades, a growth that continues also through the high school, except in multiplication, in which little gain in accuracy is made beyond the eighth grade. (Figure 14.)[1] In general, the Gary results compare unfavorably with scores elsewhere obtained. Thus, the Gary eighth grade

[1]Based on Gary results and on results of tests given in small cities, May and June, 1916.

FIGURE 14

DEVELOPMENT OF RATE AND ACCURACY IN FOUR OPERATIONS[1]



All scales have been omitted in order to bring the four curves together in one figure. The reader need only remember that displacement to the right means greater rate, and displacement toward the top of the diagram means greater accuracy. All circles represent scores in both rate and accuracy. The grades are indicated by the small figures near the circles. The solid line represents Gary scores. The broken line represents results from small cities.

children attempt 8.4 problems in addition as against 11.6 examples, the standard for small cities, and attain an accuracy of 57 per cent. as against the standard, 76 per cent.[2]

Of English composition it may be fairly said at the

[1] Based on Gary results and on results of tests given in small cities, May and June, 1916.

[2] A comparison with 1914 standards would be more favorable to Gary.

outset that American school systems, in general, make a poor showing. At Gary testing was limited to simple narration. Children were asked to write a story of some interesting or exciting experience that they had themselves passed through. Subjects were suggested, and, for the most part, their selection of a topic conformed to the suggestions made to them. Children wrote freely in the presence of the examiners and were given ample time—fifteen to twenty minutes.

The following paper illustrates the average composition ability of the best eighth grade class at Gary (50 Hillegas):

AN ACCIDENT

We were out at camp No 133 which is sittuated ~~in on~~ near the banks of Deep River. One of the men that stayed at this camp owned a old duck boat which leaked and if you wanted to ride in it you would have to set a certain way ot it would fill with water and soon sink.

My brother saw me paddaling around in it and he decided that he would do it himself. He weighed about twenty-five lbs. more than me I told him the way to set in it but he would not listen but said that one end was as good as the other.

He jumped in and sat down on the nearest end which was the wrong end and paddaled out into the river. He paddaled down the river for

some distance and then turned around to come back. By this time the boat was nearly sinking and we saw him paddeling as fast as he could go to get back to the bank.

But it was of no use the boat began to sink and he tried to get to the right end but in trying to get to the right end he upset the boat and had to swim with all of his clothes on. The water wasn't very cold and he swam all the way up to the bridge pushing the boat with him. He soon was in dry clothes and was none the worse for the accident.

A study of the scores[1] assigned to the eighth grade compositions shows that of the 122 eighth grade pupils tested, but one pupil in three wrote a composition in merit equal to or better than the above sample. It is therefore fair to infer that the elementary school training does not give much power in the selection of subject matter, the organization of material, or the choice of words. The admirable teaching singled out for comment in the preceding chapter is thus clearly exceptional and does not reach any considerable number of pupils.

Teachers of English hold that there should be in compositions increasing freedom from error from grade to grade, and increasing power both to choose the words best adapted to the expression of a given thought and to organize the words chosen into coherent discourse. Ac-

[1] For scores see Table LIII, report on Measurement of Classroom Products.

cordingly, the eighth grade papers were subjected to a series of analyses in order to determine the number and character of the various errors made. Papers were marked for gross errors in capitalization, punctuation, spelling, and grammar. On the average, a Gary eighth grade child makes a total of $6\frac{4}{10}$ gross errors in his first draft of an original composition of 214 words.

Even more complicated than composition is the subject of reading. What do we mean by the ability to read? Do we mean merely ability to pronounce a given series of words correctly? Or is it implied that the series of words in question should be read with intelligent expression? Does "reading" involve capacity to reproduce the thought in one's own language, or the ability to answer questions about the contents of the passage read? Is there any difference between reading aloud and reading to oneself—oral reading and silent reading so-called? This is not an exhaustive list, but it serves to show the necessity for careful procedure, and an equally careful interpretation of results.

Both oral and silent reading tests were given at Gary. For the former, Gray's scale was employed. This yields a score based on the difficulty of paragraphs to be pronounced, the time taken to read them, and the number of errors made. When so tested, the Gary children, with the possible exception of the second and third grades, read more slowly and make slightly more errors than children of other systems, for example, the children of 23 Illinois cities (Figure 15).[1]

[1] See page 103.

The Kansas Silent Reading tests, among others, were used to measure the silent reading of the Gary children. These consist of short paragraphs, each requiring the child to make some response; the accuracy with which the response is made indicates whether the paragraph has been correctly read and comprehended. The test is therefore not only a reading but an intelligence test, affording an index of the degree of development attained in the ability "to read and think about what is read." The results show that Gary children respond to a complicated test of this kind about as well as children generally. (Figure 16.)[1]

The results of the two chapters dealing with instruction may be briefly summarized. The impressions gained through inspection and the results of the tests are not entirely consistent. For example, silent reading makes a distinctly better showing in the tests than one would have expected on the basis of classroom observation. Spelling makes a poor showing on the list test and a very good showing on the composition test. It is not possible to reconcile these divergencies without adducing considerations as to which different opinions could fairly be entertained. Without, however, seeking to ignore the conflict of evidence, the authors still feel that the quality of classroom instruction at Gary falls short of what is necessary.

We are interested, however, not only in the Gary classroom work as such, but in making out, if possible,

[1]See page 103.

FIGURE 15

CITY WIDE AVERAGE SCORES BY GRADES—GRAY'S ORAL READING SCALE

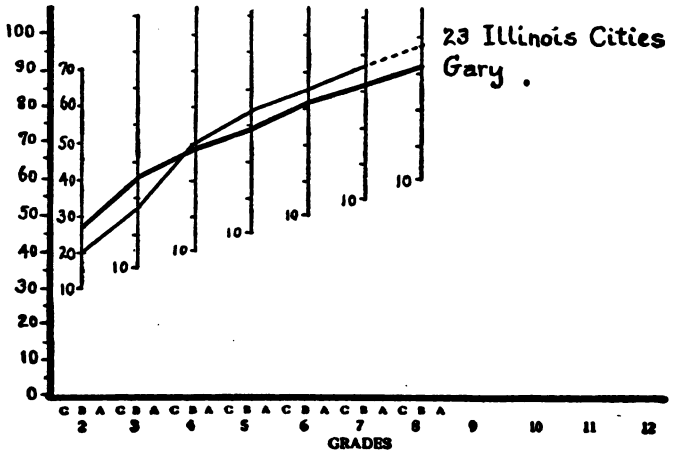
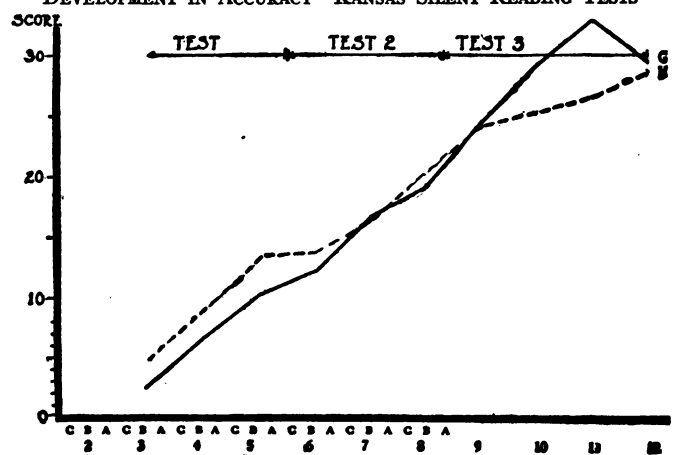


FIGURE 16

DEVELOPMENT IN ACCURACY—KANSAS SILENT READING TESTS



G-Gary series K-Kansas series

whether it has been favorably or unfavorably affected by the so-called duplicate organization and the unprecedented development of special activities. From this point of view, let us recall certain important differences between the schools. The Froebel and Emerson schools are the only schools completely equipped on the Gary plan; the Jefferson and Beveridge schools, though organized on the duplicate basis, offer a much simpler program. Again, the Froebel school, containing 36 per cent. of the entire school population, is more recent in origin and more foreign in composition than the Emerson. Do the results of the tests reflect these differences? Is the classroom work of the fully developed Gary schools consistently different in quality from that of the less complicated Gary schools? The facts are these:

In the handwriting tests there is almost no trace of constant differences from school to school; the differences in spelling are slight, but, such as they are, lean in favor of the Jefferson and Beveridge schools; in arithmetic, Beveridge leads, Jefferson comes second, Froebel, despite its handicaps, surpasses Emerson; in composition, the order runs, Jefferson, Emerson, Froebel, Beveridge; in oral reading, Emerson is distinctly better than the other three schools; in silent reading, Froebel and Beveridge read more rapidly than Jefferson and Emerson, while in the reproduction test, Jefferson comes first, Emerson second, and Beveridge last.

It is clear that in both the more complicated Gary schools the teaching is in some subjects relatively better

Physics Laboratory—Froebel School

than the teaching in the simpler schools and that in other subjects the reverse is true. The extent to which the Gary plan is carried out is not therefore in itself the decisive factor. We are inclined to believe that lowness of score is attributable to lack of unity of effort on the part of an ineffectively supervised teaching staff, recruited from many different sources, and to confusion due to the constant infiltration of pupils from other school systems, while the fluctuations from school to school and from subject to subject are probably to be ascribed to local and individual causes. However this may be, it must be recognized that no educational system can be considered to have completely established itself until, whatever else it achieves, it has also secured the fundamental educational values represented by the essential tools of learning. The results of testing the Gary schools do not invalidate the effort to socialize education, but it is evident that the Gary experiment has not yet successfully solved the problems involved in the socialization of education, in so far as efficient instruction in the necessary common school branches is concerned.

IX. SCIENCE TEACHING[1]

THE teaching of science necessarily plays an important part in an educational scheme constructed with deliberate and adequate reference to the world we live in. This does not mean that place is to be made for science by excising from the curriculum studies and activities that derive their sanction from other, yet equally cogent, considerations—literature, for example, and history, music, and art. The various efforts needed in order to touch the pupil at vital points must harmonize the conflicting demands upon his time and energy—a problem rendered easier of solution by the lengthened school day, improved school equipment, and the better use of the child's environment. An education of this type will, as we have already pointed out, include the traditional humane studies for their social and æsthetic value; industrial activities, because they give an additional outlet for constructive impulse, at the same time utilizing important aspects of current life; and, finally, science studies, not only because they give scope and play to senses and judgment, but because through

[1]For detailed account, see report on Science Teaching, by Otis W. Caldwell.

them alone can the child gain insight into the world of nature.

In connection with science and shop work, the mere cultivation of dexterity and the exercise of the senses have, of course, an undeniable value. It is worth a boy's while to be "handy," and certainly worth his while to be observant. Thus even at the sense level, a case can be made out for work of this type. But it takes a deeper and stronger reason to justify the elaborateness of outfit which Gary has installed and the seriousness with which the subject is viewed. This is not far to seek. It is, for intellectual reasons, a sound philosophy of education which insists that the child do things rather than read about them or see them done. But mere doing of concrete tasks—whether artificial tasks from the laboratory manual or real tasks from everyday life—fails to prolong the exercise into the intellectual region. To realize large educational value the exercise needs to be carried far enough to bring out explicitly the intellectual side of processes. The pupil must study and study hard about the factors which he is manipulating; he must think and think hard about the causal and purposeful relations involved in the concrete processes that he is carrying out. He must eventually be able to express results in generalized form, and to deal in the abstract with laws and relationships. A development of this kind does not take place spontaneously, as a result of the pupil's working with metals, a printing press, a dynamo, or a camera. Yet in these appealing tools and objects—camera, dynamo, or lathe—

innumerable intellectual values and factors are involved —the origin and history of culture, the properties of materials, the application of laws and principles of wide scope. Only a skillful instructor, pursuing a well thought out and well wrought out plan, requiring interested and protracted effort on the pupil's part, can teach science in this fashion. But science and shop teaching will not otherwise meet expectations or realize their possibilities.

Great hopes attended the introduction of science studies into education—hopes that to a considerable extent have thus far been disappointed. If we assume—as we do—that this disappointment does not really imply simply a mistaken enthusiasm on the part of those who believe in the importance of science in the child's educational development, several reasons may be assigned for it—the lack of sufficient school time, the lack of trained teachers, and the employment of an unsound method. These factors go far to account for the unsatisfactory outcome of the early efforts to teach science in the elementary and the high school. The subjects usually got only a "stepmotherly" position on the school schedule; often the teachers had not been properly trained; finally, the method of presentation was excessively formal and abstract, i. e., the subjects were presented to children in the severe logical fashion appropriate only to mature minds.

A method of approach that seeks to remedy these defects has often been urged by educational reformers and

has already in a measure been successfully demonstrated in a few places. Gary has, however, undertaken the experiment on a larger scale and with more elaborate facilities.

The science teaching of the Gary schools falls naturally into two divisions, (1) nature study and gardening, carried on in the primary grades, (2) study of the separate organized sciences, carried on in the upper grades of the elementary school and in the high school. Nature study and gardening are common to practically all the schools of the system, while the study of the separate organized sciences in the intermediate and higher grades is practically limited to the Emerson and Froebel schools. Theoretically, the science work of all schools is viewed as a department under the supervising direction of the teacher of chemistry in the Emerson school, but this organization is only nominal. No general statement of purposes, no outline or plan of work aiming to secure coherence and progression throughout the system had been prepared. The several schools were left free to define things, each for itself, without careful oversight.

In respect to scheduled time allotment in the elementary schools, science exceeds six subjects and is itself exceeded by six subjects; it gets more time than German, music, geography, writing, spelling, or history, less than reading, language, arithmetic, manual training (including drawing), auditorium, or physical training. In this matter, Gary does distinctly better

for science subjects than other systems. While the fifty cities, whose programs were tabulated by Professor Holmes of Harvard, schedule on the average 331 hours to science in the elementary school, Gary schedules 567—i. e., 70 per cent. more. Of the total school time, science gets in the fifty cities on the average 4 per cent.; at Gary, 5 per cent. This, however, be it observed, is the scheduled allowance. At Gary, practice falls short of theory, though we are unable to state how far short. The time set apart for science is not infrequently found to be otherwise occupied.

For the nature study work of the primary grades, which is conducted by special teachers except in the very smallest schools, all the schools possess more or less equipment. The large resources of the Emerson and Froebel schools easily supply the requisite material. Of the smaller schools, the Jefferson provides a remodeled classroom, containing a plant growing house, animal house, and work place for children, mounted specimens, birds' nests, etc.; the Beveridge school possesses less, the Glen Park school, almost nothing, and the remaining schools, nothing. All the schools, however, with the exception of Ambridge and West Gary, have ample and flourishing gardens.[1]

The work in these early grades is formless and discontinuous in character. Not only is there no general

[1]It is difficult—and properly so—to draw a sharp line between nature study and botany, especially at the Froebel and Emerson schools, where the teachers of botany are in charge of the school gardens.

program, but no teacher has developed a comprehensive program of her own. At the Jefferson, for example, one of the earlier grades, was at the time of the survey attempting observational work on the pussy-willow. Another class was engaged in developing the subject of climate with particular reference to the cause of winds; at the close of the discussion a home experiment to show how air currents are affected by heat was suggested, though the explanation was too vague to guarantee a successful result. At the Beveridge school, nature study, which does not go beyond the third grade, was of the same occasional character, consisting of things that seemed to "fit in best"—now a field trip for fruit branches, again a bird lesson, later, an observational study of beans. In the absence alike of a program, and of appropriate records, it was not easy to ascertain just what had preceded or what was to follow. In the Emerson school, the children were particularly interested in the observation and care of living animals. The clearest evidence of interest and activity appeared in certain schools, where the pupils had mounted seeds of the wild plants of the region, birds' nests, pictures of birds, photographs, and landscape drawings. In all the schools, with the exceptions noted above, gardening is the most substantial and regular feature of the nature work. It is, of course, not to be supposed that nature work should be uniform throughout the schools. Much latitude may be wisely allowed, in order to permit the most effective use of varying conditions and oppor-

tunities; but, whatever the divergencies, a definite purpose should guide the entire system and a certain orderly development ought to be discernible in the successive classes.

In the upper grades of the elementary school, where subjects of study become more definite and where more highly organized material can be utilized, science instruction is, as has been stated, practically confined to the Emerson and Froebel schools. The subjects offered include botany and gardening, zoology, physics, and chemistry. The equipment of the two schools, while not uniform, is good and in some respects remarkably so. Thus the Froebel school possesses an excellent botanical laboratory, the Emerson, an unusually attractive zoological laboratory with aquaria, an animal room, incubators, and an extensive out-of-door "zoo"; the physics laboratory of the Emerson contains apparatus needed for regular high school work and a considerable amount of machinery and various mechanisms—cameras, automobile engine, etc., that can be utilized in demonstrating applied principles; the chemical laboratories in the two schools do not differ essentially from what is found in the usual modern high school.

The courses of study vary in the two schools. In botany, the work of the seventh grade pupils in the Emerson is based primarily on care of the garden, the shrubbery on the school grounds, and the potted plants in the school greenhouse and corridors; an outline had

been prepared, covering systematically and in detail such subjects as the soil, plant analysis, plant reproduction, dangerous plants, farm crops, etc. At the Froebel school, the teacher was making excellent use of out-of-door experiences as well as classroom studies by organizing these into definite topics or projects. An extremely interesting project was made of harvesting; other topics of the same character were handled in similar fashion with unmistakable evidence that the pupils were interested and were profiting. With high school classes, the Emerson school used, but did not closely follow, a printed outline of practical botany. There was evidence of considerable use of the microscope. At the Froebel, a regular textbook was employed, but extensive readjustments of order and content were made. Coherent sequence of topics was regarded as of less importance than vitality of appeal. Effective use was made in the auditorium of exercises developed in the laboratory and garden, with unquestionable increase of interest on the part of pupils.

In physics, grade work at the Emerson school covers a period of thirteen weeks and is of a topical or project character, closely related either to common experience or shop work. The weight and density of the air, moisture, the thermometer are examples of the former; problems derived from the bicycle, automobile, electric, gas, or water meter, of the latter. The instruction observed was excellent, the instructor securing the interest and active participation of the class in the development of

successive themes. Moreover, the pupils saw throughout the meaning and application of facts elicited and principles discussed. Less well organized and less effective was the grade work in physics at the Froebel school. In general, the teacher conducted demonstrations, which the pupils followed and at times repeated. The high school work, consisting of a set of laboratory experiments covering the main divisions of the subject, did not differ materially from the usual high school courses.

More systematic is the Emerson course in zoology, covering forty weeks, made up of two months' work on insects, three or four months' study of the most important animal groups, a month or six weeks of human physiology, the remaining weeks of the year being devoted to collecting and studying the zoological materials characteristic of the environment. The course was a happy combination of scientific order with practical interest. The study of insects, for example, involved the use of both textbook and laboratory; but the teacher had an eye for such topics as insects and plants, insects and human disease, beneficial insects, etc. Among the most successful and elaborate projects in operation may be mentioned care of poultry—a subject conscientiously pursued through all its phases from incubator to market —though one would hardly be warranted in placing complete confidence in the records kept by the pupils. The Froebel work in this subject was distinctly inferior.

In chemistry similar conditions prevail. The grade

Chemical Laboratory—Emerson School

work is topical in character. At the Emerson school, starch conversions, fermentation, carbon compounds are among the subjects concretely presented to pupils in the upper elementary grades. In both high schools, a year is systematically devoted to the subject. A well known textbook is in use, supplemented, especially at the Emerson school, by illustrations drawn from industrial processes. Thus, for example, the school coal was tested by the teacher and pupils in coöperation. So, again, the dyes used in commercial jellies were investigated; pupils were also employed at the City Health Department, assisting in the bacteriological examination of milk.

Classroom and garden work in all the sciences is supplemented by the use of science materials in the auditorium, to which, as we shall shortly see, Gary has given a quite unprecedented development. Through a large part of the school day, successive groups of classes assemble there to witness a varied program—now a film, now a dramatic representation, now a class exercise. Science frequently finds a place on the program—one day, a simple piece of nature study offered by little children, again a really substantial topic carefully prepared by high school pupils. On one occasion each child in a group of seven explained to a large audience how seeds are distributed, under such titles as Why Seeds Travel, Some Little Tramps, Seed Sailboats, etc.; on another, a high school pupil, under the guidance of the English teacher in coöperation with the teacher of zoology, ex-

hibited two Mallard ducks, which he had himself shot and mounted, and then discussed the entire life history of the ducks in question, how they mate, nest, breed, their enemies, their haunts, uses, migration, etc. The various stages of the extended poultry project, noted above, lent themselves admirably to auditorium presentation from time to time. It should be observed also that the use of the auditorium brings about coöperation between science, shop, and English instructors.

In science classes, as in the shops and kitchens, Gary makes considerable use of "helpers," younger children assigned to work with a more advanced class. Adults who in childhood attended ungraded schools occasionally testify to the stimulus derived by them from listening to older pupils. The sharp classifications of our highly organized schools undoubtedly involve a loss in this respect. On the other hand, the "helper" situation is stimulating only if there is some real participation, intellectual or otherwise, on the part of the younger pupils. No educational advantage comes to them from sitting idly by, without interest or responsibility. In the science classes at Gary, as in the shops, one feels at times that assignment as helpers is a device resorted to in order to relieve the schedule rather than profitably to employ pupils. The plan should not be discarded, but it should be less freely and more discriminatingly used.

The foregoing account makes it clear just what Gary has done to cure the defects of science teaching. We

stated at the outset that science is still in most schools grudgingly treated in the way of time and facilities, and that science materials, largely because they lack concreteness, make too feeble an appeal to children. Gary has been comparatively generous in giving time and providing equipment, and has thus explicitly stamped the subject as important.

It is, however, quite impossible to characterize the instruction in general terms. Here and there—notably in the high school grades of the Emerson school—it was good, that is, the instructor pursued an orderly plan in choosing and arranging material and constantly sought to show the way in which science principles are nowadays applied in the common mechanisms of modern society. The pupils were interested, but they were more than interested—they were being trained. So, also, the teaching of botany at the Froebel school was in a high degree intelligent and effective; it was not deficient in scientific order, but nevertheless kept in close contact with the facts of life. Elsewhere, however, the instruction was too frequently formless and aimless. It had too often abandoned the safe though usually dispiriting support of the textbook, without finding other safe anchorage.

In science, as in shop work and household arts, practical tests were given. The difficulties encountered are obvious. There are as yet no standardized tests in these practical activities, hence Gary results cannot be compared with results elsewhere. Again, in the absence of

previous efforts to test the pupils and of definite records of what ground the several classes had covered, it is not possible to say to what extent the results of the tests are to be ascribed to the instruction received. Despite these drawbacks, it was felt that a precedent should be set, in order that teachers of science might be stimulated to define their purposes and to set about the preparation of objective tests of their teaching.

Nine tests were given to all eighth grade classes, to the seventh grade of the Beveridge school,[1] and to the high school classes in the Emerson and Froebel schools. Three types of ability were tested—first, ability to observe and to discriminate objects placed before the pupils; next, ability to recall past experiences and apply their outcome to new, but similar, experiences; and lastly, ability to interpret and explain phenomena which undergo changes in the pupil's presence. To test ability to observe and discriminate, children were asked to note what they saw when an oak leaf and an elm leaf were placed before them, or when colored pictures of birds strikingly alike or strikingly different were submitted to them. Ability to recall was tested by asking the pupil to name birds or insects which he had seen or studied. Ability to interpret changing phenomena was tested by performing in the pupil's presence experiments involving gravity, the properties of air, and air currents due to variations in temperature.

The results showed beyond all question that in vary-

[1]Where there is no eighth grade.

ing degrees the Gary pupils can observe, discriminate, recall, and reason about phenomena, though individual variations within the several classes are very marked. The Beveridge school, where science teaching is limited, makes an unfavorable showing as compared with the Emerson, Froebel, and Jefferson schools, though of course there are individual exceptions. Despite the fact that its opportunities are inferior to those of Emerson and Froebel, the Jefferson school makes, in general, the best showing of all, partly, perhaps, because the school is more homogeneous in composition, partly, beyond all doubt, because the school program is better organized and better supervised. On the whole, however, the results cannot be regarded as satisfactory. The performance is too uneven and excellence is too infrequent.

This unsatisfactory showing would seem primarily attributable to lack of continuity and design. Even science teaching of conventional type cannot run itself; still less so, science teaching which abandons the beaten path. Supervision and staff organization, necessary under ordinary circumstances, need to be more efficient, more intelligent, even if also more flexible, under the conditions that obtain at Gary. But Gary's science supervision is nominal and its staff conferences far too rare to answer their purpose. In such circumstances, conventional teaching would be unlikely to be good of its kind; a large experimental undertaking is foredoomed to an unsatisfactory result.

Gary has, however, shown courage and resourcefulness in trying to deprive science teaching of its remote and abstract character, in trying to bring it into touch with the child's experience and to relate it to his other school work. Teachers of English and teachers of science occasionally attack a large problem together; the shop and the laboratories are at times brought to bear on identical problems. This is excellent as far as it goes, and contains the germ from which a rational course in school science may ultimately be worked out. But it is not enough merely to break away from the formal, cut and dried type of science teaching represented by most textbooks and to introduce concrete problems from time to time. Chaos supervenes unless aims have been sharply defined and the orderly development of laws and principles assured through intelligent and forceful guidance. Beyond a general, and, be it admitted, a sound predilection for the concrete as embodied in the environment and experience of the child, it is impossible to discern at Gary a principle of organization or progression in science teaching. Unquestionably, the children are interested in their science work and derive pleasure from it. But science fulfills its educational mission, not simply by arousing interest in a disconnected series of phenomena or giving pleasure through a disconnected series of experiences, but by cultivating the child's capacity to deal intelligently and vigorously with problems. This ought indeed to be both an interesting and a pleasurable task; but unless it involves order, persistence,

and hard work, its educative effect is probably of minor importance only. Unless so presented, science is likely to be a transient diversion rather than a profoundly formative and disciplinary influence in the child's development.

X. INDUSTRIAL WORK[1]

WE HAVE stated in a previous chapter that the Gary scheme springs from a thorough analysis of the existing social situation. The truth of this statement is particularly evidenced by the provisions made for industrial work for boys, household arts for girls, and recreation for all.

As contrasted with children brought up in the country, urban children usually find little in their environment that places upon them any real responsibility or tends to develop manual skill. The city home has practically ceased to carry on productive tasks; the operations fundamental to industry and transportation are so remote and so intricate that we quickly become their passive beneficiaries without participation or even understanding. The growing child's experience has thus been distinctly impoverished, while the leisure and energy once productively and coöperatively enlisted in the home find nowadays too easy an outlet in demoralizing amusements.

The special activities, to the consideration of which we now pass—the shops, kitchens, sewing rooms, and

[1]For detailed account, see report on Industrial Work, by Charles R. Richards.

recreational facilities—are thus justified by a variety of considerations. They are physically helpful, for they contribute to a complete development of muscles and senses. They are socially wholesome, for they break down the false scholastic distinction between intellectual and manual tasks; they are in the stricter educational sense important, because they supplement the printed word with actual experiences, which, intelligently handled, give new and real meanings to formal school exercises, enlarge the child's range of vision, and disclose otherwise unsuspected needs and aptitudes.

Industrial equipment and opportunities vary greatly in the different Gary schools. They are most highly developed in the Emerson school, where provision is made for machine work, foundry, forge, and printing, and in the Froebel, where carpentry, plumbing, sheet metal work, painting, printing, pottery, and cobbling are provided. Printing is the only industrial opportunity common to both schools. In Jefferson, a single combination shop offers carpentry and a limited opportunity in metal work, and there is a single woodworking shop at Glen Park and at Beveridge; the remaining schools have no special shop equipment. The industrial facilities of the Emerson and the Froebel schools are, as has already been stated, exceptionally diversified and extensive.

The amount of time given to industrial instruction varies considerably. At the Emerson, where the school year consists of three terms of thirteen weeks each,

grades 4 to 8 devote approximately two hours daily for one term to science, two hours daily for a second term to shop work, and divide two hours daily of the third term between drawing (one hour a week) and an elective—which may be shop work, if the boy so desires. At the Froebel, where the year consists of four terms, each ten weeks in length, pupils in the fourth and fifth grades work at printing, plumbing, and painting; pupils in the sixth, seventh, and eighth grades are scheduled to spend two hours a week for a term each in drawing, shop work, science, and as teachers' assistants.

These theoretical schedules hold fairly well for the several classes of a school, as before pointed out, but are only loosely followed in actual practice by the different members of a class. Individuals were by no means infrequently found who had spent an entire year, instead of a single term, in this or that shop; pupils were found who had had several shop terms, but no training in mechanical drawing. Of 20 cases in which special records were obtained at the Emerson school, 11 had taken some form of shop work in each of the three terms of 1915–16; 7 had done shop work during two terms, and only 2 had had a single term of shop work and one term of mechanical drawing. The record of these pupils in previous years was much the same; in many instances every term for three years, sometimes every term for four years had included shop work.

Similar conditions prevail at the Froebel school. Of the elementary pupils enrolled in all Froebel shops

Handwork Room—Jefferson School

during the four terms, 603 worked one hour, 225 worked two hours, and 5 worked three hours. Of 28 pupils whose records were obtained, 5 had had shop work in each of the four terms of 1915–16; 4 had had three terms of shop work and one term as store attendant; 4 others had had three terms of shop and one of mechanical drawing; 6 had had three terms of shop work; 2, two terms of shop and one of mechanical drawing; 6, two terms of shop work; only 1 pupil had had but a single term of shop work during the year. For previous years, the records of the same pupils were similar.

Whether the frequent departures from schedule are to be interpreted as indicative of flexibility or laxity must depend to some extent on the care taken by the school to ensure intelligent choice. It would be absurd to hold all pupils to the same formula; it does not follow, however, that it is wise to allow children to do what they choose or as they please. A flexible curriculum is not a curriculum subject to unaccountable and irresponsible modification; it is, as we have already urged, a curriculum adjustable on the basis of carefully considered individual needs, capacities, difficulties, and opportunities. Thus viewed, the Gary administration of shop instruction is lax rather than flexible. The uncontrolled preference of the pupil appeared frequently to be the main determining factor in regard to the disposition and extent of the shop periods. At the Emerson school, pupils assigned to shop work are designated to particular shops by a clerk in the shop supervisor's office. No discrimination appears

to be exercised, no counsel to be given. Questions addressed to the pupils showed that a shop choice is often a matter of accident. Conditions were but little better at the Froebel school, where the distribution of pupils to the various shops was made by an instructor, who, however, during the period of the survey gave very little attention to serious counsel with children as to their shop elections.

The children in earlier grades (fourth and fifth, ages ten to twelve) participate in shop, science, and art work not as regular pupils, but as "helpers." The school is viewed "as a large family, wherein the younger children learn consciously and unconsciously from the older children, while the latter learn to assume responsibility and to take the initiative." The younger pupils, it is held, learn more by working with older pupils than they can be taught in separate classes by themselves.

On the strictly educational side, the "helper" system in the shops might be defended on the ground that a more or less unsystematic experience forms an excellent basis for more systematic effort at a later stage. Once more, practice and theory do not fully agree. Observation in the Gary shops indicates that the younger children do not really "help" their elders, but themselves constitute groups to which separate and definite tasks are assigned, groups to which instructors give time and attention in the same manner, though not always to the same extent, as to older pupils. For example, in the forge and foundry of the Emerson school there were

classes made up of 9 to 16 boys from the third, fourth, and fifth grades, with only one or two older boys; obviously, a dozen children cannot "help" two older pupils. Again, from 12 to 16 fourth grade pupils constituted a group in which there were no older boys at all. Nevertheless, in all the instances, the third, fourth, and fifth grade pupils are called "helpers" on the program. So at the Froebel school, the majority of regular assignments on the program of February 1, 1916, in the printing, plumbing, and painting shops consist of fourth and fifth grade pupils without admixture of older pupils. The word "helper" was not used to designate these groups, though they were composed entirely of pupils of the "helper" grades.

Of how much educational value is such experience? Something would depend on the alternatives open. If the child were not in a shop, where would he be and what would he be doing? In so far as the direct value of the experience itself is concerned, it may perhaps be fairly said that third grade children—found in considerable numbers despite the schedule—have too little power of sustained attention, too little mental development, and for certain shops not enough physical strength to gain much direct advantage. The situation in respect to the fourth and fifth grades is less definite and varies with the shops. In the forge shop, they potter away ineffectually at work beyond their strength and skill. In the foundry, however, barring the lifting of the loaded flasks, they can not only appreciate the common pro-

cesses, but they can master the simpler operations. In printing, the exacting work of typesetting requires more care and patience than boys and girls of this age are usually capable of. In woodworking, simple work can be satisfactorily accomplished, and this is to a small extent perhaps true of elementary tinsmithing. The work of cutting and threading pipe in the plumbing shop requires more strength and muscular coördination than boys of this age can bring to bear. In painting, very simple work can probably be accomplished, but it is doubtful whether sustained effort can be counted on for a two hour period. In the shoe shop, substantial though somewhat rough work can be done by these pupils. In general, it would seem true that the presence of these children in the forge, printing, and plumbing shops results in little that is of value and that the only shops for which any argument can be made are woodworking, painting, shoe repairing, and to some extent the foundry. Even with this assumption, it still remains an open question whether work in special shops by pupils from these grades returns an educational value proportionate to its cost.

Primarily, the industrial training offered at Gary aims simply at the enrichment of the child's school experience. To some extent and in a limited number of cases, it may serve a useful prevocational purpose, that is, the future artisan may be assisted by his school experience to select his vocation intelligently. But for vocational training itself the experience gained is too slight

Print Shop—Emerson School

to be as such of real importance. It is justified not because it introduces boys to vocations, but because it gives their constructive instincts and abilities something to do and because it brings them into sympathetic touch with the modern industrial world.

The realization of this aim, in so far as concerns the Emerson and Froebel schools, is sought through maintenance and repair jobs. The pupils are not set to do tasks devised to meet definitely conceived educational ends; rather, the educational end is a by-product. The instructors are journeymen mechanics, who receive the regular union scale of wages. Care has been taken to choose men who are intelligent, kindly, and interested in boys; the instructors are patient, helpful, and industrious; but, as might be expected, they vary greatly in respect to skill as teachers. They are not apt to extract the intellectual elements from a given situation—that is, to bring out the reasons for a particular method of work or to pursue inquiries beyond the execution of the task in hand. Again, the tasks themselves are determined not by simple educational considerations, not by selection on educational grounds from the large mass of jobs that need attention, but by practical daily need in the school system or the home. Pupils engaged in painting actually assist the school painter, who is also school instructor, in a painting job required somewhere in the school system; pupils working in tin make buckets or pails for which there is or will be a use; pupils engaged in cobbling mend their own shoes; and

the boy's task is not cut off when the educational purpose might be judged to have been served, but is likely to continue until the practical need has been met.

The character and extent of the productive and repair work carried on in the various shops may be gathered from the following items taken almost at random. At the Emerson, the machine shop turned out drilling pipes for soap retainers, lock castings, woodworkers' bench vises, printing chases, and made repairs to arc lamp, seats, emery grinder, and a model locomotive; the forge shop produced damper rods for furnaces, iron brackets, stencil knives, stairway railings; the foundry turned out castings for playground equipment, for automatic locks, for lathes, and for pump valves; from the printing shop came report and record blanks, program schedules, transfer cards, excuse blanks, deposit slips, letterheads, envelopes, etc. At the Froebel, the cabinet making shop carried on much repair work, and made, besides, window brackets, building blocks, Montessori sets, and thirty teachers' desks; in sheet metal work, dustpans, desk trays, water buckets, paper trays, mail boxes, and light reflectors are reported; the productive and repair work in plumbing included the installation of sinks, basins, and shower baths, the repairing of drains, faucets, sinks, etc.; the painting shop was busy in refurbishing outside sashes and frames, repainting classrooms, shellacking building blocks, oiling gymnasium floor, etc. In the shoe shop any child may repair his own shoes or shoes belonging to a member of his family. The child may furnish material

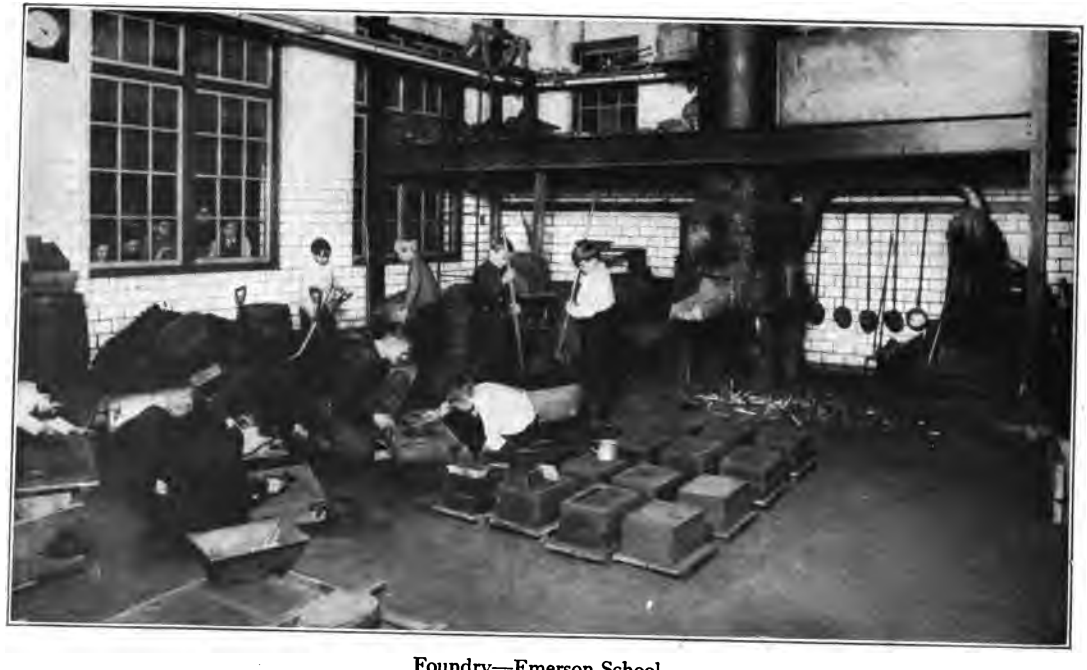
or buy it at the school. In general, the work turned out is creditable, but it is of course manifestly impossible to determine the degree to which the instructor has participated.

Somewhat elaborate practical and written tests were given in order to provide an objective basis for judgment as to what is achieved by the system of industrial instruction just described. For example, in order to test the work done in the machine shop of the Emerson school, the seven high school students who had had the longest experience in this shop were provided with a piece of soft rolled steel, which they were required to manipulate in accordance with the outline of a blueprint furnished to them. Subsequently the boys took a written test designed to ascertain how far they comprehended the reasons for what they had done and also whether they had been led to see the wider uses and implications of the machines and processes that they had been employing. On the whole, the boys displayed confidence, familiarity, and a fair degree of skill in dealing with common machine shop operations, but oral as well as written questions showed that their grasp did not penetrate below the surface. They gave little evidence of knowing the mechanism of the various tools, the nature of the materials used, or the place that the machine shop occupies in the industrial world. To boys working in the foundry a test in the use of patterns was given. On the whole, their work was well done; they attacked the task with readiness and confidence, and carried it through in a businesslike way,

with little loss of time through mistakes or hesitation. A written examination and oral questions showed, however, that only limited attempts had been made to form a background of ideas and knowledge drawn from this and related industries. Little attention, for example, had been paid to illustration, study, or even enumeration of the products of the great mills that are the reason for the city's existence. Again, in the sheet metal shop, of seven pupils asked to make a galvanized iron pail, four acquitted themselves creditably; but the written tests disclosed a poverty of information and thought, though the replies of eighth grade pupils were noticeably more intelligent and better informed than those of seventh grade pupils. In general, it is fair to say that, while displaying considerable practical competence, pupils had not been led to reflect and had, in consequence, extracted little of intellectual value from their shop work.

The discussion up to this point has been concerned entirely with the Froebel and Emerson schools. At the Jefferson school, a single combination shop is provided, the equipment of which consists of several woodworking benches, a hand drill, a vise for holding iron pipe, cutting and threading tools for the same, and a few simple tools for sheet metal work. At one end is a stock room in charge of a pupil during class hours, and at the other a steam engine which supplies power for the electric light plant.

The work carried on differs radically in principle from that of the two schools already considered. The



Foundry—Emerson School

Froebel and Emerson shops endeavor to procure educational results from maintenance and repair activities; the Jefferson shop defines its objects in terms of the conventional manual training philosophy. Practical construction cuts little figure; repairs and equipment are attempted only on a very inconsiderable scale; the bulk of the work takes the form of projects for home or personal use. The instructor is not an artisan, but a school trained man of enthusiasm and devotion; the building engineer serves as his assistant.

The schedule of the Jefferson school provides drawing and bench work, one hour daily for twenty weeks, for children from the first to the lower fifth grade; from the upper fifth to the eighth grade the schedule calls for twenty weeks of shop work in one hour periods and for half as much drawing. The major part of the time goes to woodworking; exercises are used, followed by individual or school projects; the pupils built the tool room, shop cupboards, and bookcases for the school. A small amount of metal work has also been turned out. At intervals of three weeks, two boys are assigned to assist in running the heating and power plant.

In this connection a word should be said about drawing and handwork. In the first three grades, for example, of the Emerson and Froebel schools a daily period is scheduled for such work. While there are no uniformly planned courses, the teaching is carried along the usual lines with considerable ability. Above the third grade pupils choose between mechanical

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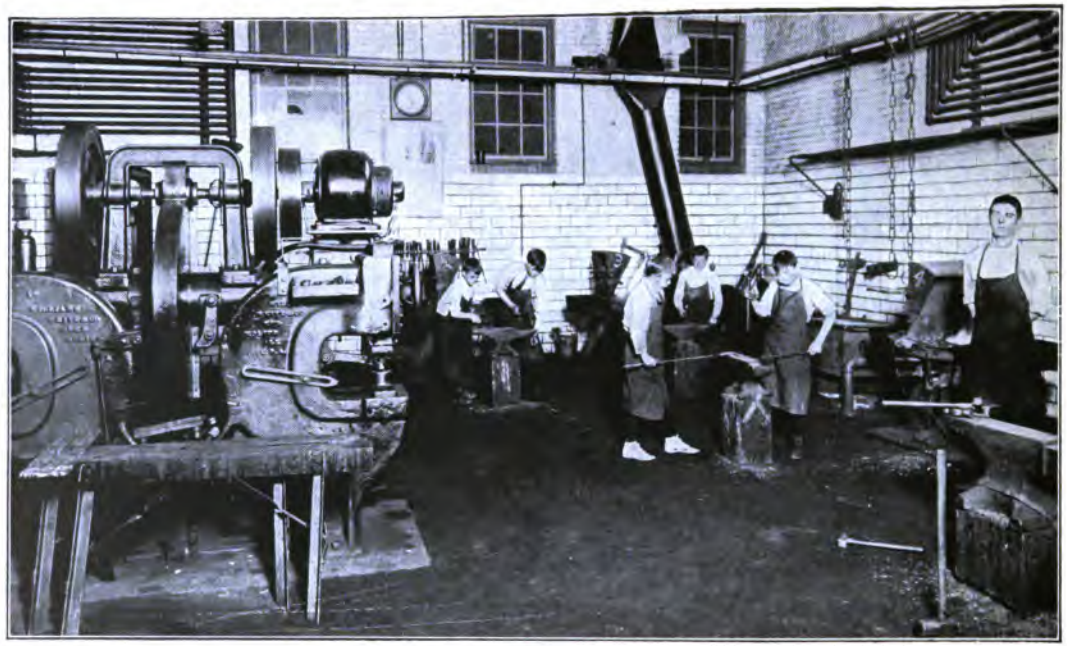
To instruction on the basis of maintenance and repair, there is the further objection that the opportunities which are thus developed are not necessarily those that are of the highest educational value. Moreover, there may prove to be a lack of sufficient material and of sufficient variety, unless the school system grows steadily and the shops are confined to two or three central schools. If, for example, the school system should come to consist wholly of buildings of the Froebel and Emerson type, each with a full complement of shops, maintenance and repair might fall short of providing educative tasks enough to keep the shops throughout the schools effectively occupied.

The shop men are themselves doubtless under the impression that they are constantly giving instruction, because they are continuously called on for directions and explanations. But the truth is that instruction in a large sense has not been a part of the serious business of the department. The pupils take no notes; no tests of shop or industrial information have been made; no practical correlations of shop experience with mathematics or science work were observed; no charts or sketches on the blackboard are employed; trade catalogues, abounding in illustrative matter, have been used only to a very limited extent. In some cases, it is hardly an overstatement to say that the shop work represents a maximum of activity with a minimum of thought as to the thing done. In part, these defects are ascribable to the employment of artisan teachers; but they could un-



Forge—Emerson School

doubtedly be more or less fully remedied by adequate supervision.

As an offset to the defects of the maintenance and repair system, it may be urged that it is after all the only system available under the financial conditions that obtain at Gary. This argument, however, relies on the assumption that the shops are self-supporting. Were this the case, it might well be asked whether a school system unable to afford shops organized on educational principles does not do well to organize them on the maintenance basis. The situation, however, is neither so simple, nor so favorable to the maintenance type of organization. It will appear, when we come to the discussion of school costs, that, when credit is allowed for labor and material cost of production, even the shops which are operated primarily on the maintenance basis are only 69 per cent. self-supporting. The question is therefore whether the sum needed to make up the deficit could not be put to more effective use. A positive answer can hardly be given at this time. Moreover, before it is attempted, the Gary shops should be given a chance to show how far the defects and objections urged in this chapter can be overcome by effective supervision, and a further chance to determine experimentally how far the maintenance plan can, without perhaps greatly increasing the expense, be so qualified as to meet the objections which we have urged.

It remains to be emphasized that the shop work at Gary is not primarily a preparation for earning a liveli-

hood as a mechanic or artisan. In the long run, the importance of the work depends on its general educational value—on what it does to develop the child's senses, to broaden his vision, and to furnish an outlet for abilities that might otherwise go uncultivated. On the other hand, it is only fair to add that the training received by some pupils in some of the shops proves of direct vocational value when they enter certain of the industries on which the prosperity of the city is based.

XI. HOUSEHOLD ARTS[1]

IN THE preceding chapter, the point was made that the industrial work for boys is not vocational in aim. The shop activities are not meant to make carpenters, painters, and plumbers, but to furnish growing boys with concrete opportunities for the development of senses and muscles, and concrete experiences which will enable them to participate intelligently in a social order in which industry bulks large. The same holds of the practical work for girls; it is not primarily intended to make expert seamstresses or teachers of cooking. However, instruction in cooking and sewing is not on precisely the same footing as instruction in foundry work or carpentry; for, in addition to their educative value, the household arts carry for girls in general a large prospect of actual application.

Cooking is taught regularly in the elementary school in the seventh and eighth grades, with pupils from the lower grades acting as helpers. The instruction is condensed into courses from ten to thirteen weeks in length, one or two hours daily. Pupils must enroll for at least one course one hour daily, and may take more. While

[1]For detailed account, see report on Household Arts, by Eva W. White.

cooking is thus compulsory for elementary pupils, it is optional for high school girls, and may be elected by them in the ninth, tenth, eleventh, and twelfth grades at the Emerson and Froebel schools, which alone have high school students. In point of fact, few high school students pursue the subject.

It is difficult to determine definitely the content of the cooking instruction in either the elementary schools or the high schools, since there was no systematic course of study for either all schools or any one school. Moreover, the year of the survey chanced to be one of unusual disorganization. The teacher at Froebel had been in the system only since September and was preparing to leave, as was also the instructor at Emerson. Teachers changed at Jefferson during the spring, and at Glen Park all cooking gave way in April to gardening, while at Beveridge nothing more than the preparation of the school luncheon has ever been attempted. However, effort was being made—at least at the Emerson, Froebel, Jefferson, and Glen Park schools—to meet the minimum elementary, and at Emerson and Froebel the minimum high school, requirements of the State Department of Public Instruction. Beyond these minimum requirements, each teacher is free to plan and to execute such daily tasks as in her judgment are calculated to meet local and individual needs.

The preparation of food for the cafeteria forms the basis of the Gary work whether of elementary or high school grade. There are no cooking laboratories other

Cooking Room—Emerson School

than those employed in the preparation of the noon luncheon. The same equipment is used by both elementary and high school students and the same instructor directs both groups. The children help to prepare the food, set the tables, and do the serving, the older pupils being held responsible for the more difficult tasks.

Under these conditions, the content of the cooking instruction can be best inferred from typical menus:

MONDAY	TUESDAY
Cream of tomato soup	Roast pork
Boiled ham	Sweet potatoes
Baked potatoes	Stewed tomatoes
Tuna fish salad	Cabbage salad
Tomato salad	Brown betty
Cup cake	Chocolate cream
Peach dumplings	

WEDNESDAY	THURSDAY
Lima bean soup	Hot roast beef sandwiches
Roast beef	Scalloped meat
Boiled potatoes	Steamed cabbage
Banana salad	Ham sandwich
Washington pie	Orange salad
Stewed prunes	Marble cake
	Steamed pudding
	Lemon cookies

It is possible to cover the field by means of varied menus quite as thoroughly as by means of definitely organized courses, provided the teacher keeps track of what the pupils have done and what remains for them to do. Unfortunately, however, except in one school

there were no such records, so that between the absence of records and the frequent change of teachers, there was danger of repetition without progress.

The classes in cooking are always small, never containing over twenty and averaging from twelve to fifteen. This would be admirable, if the group were homogeneous; unfortunately, a class in cooking is seldom made up of pupils from one grade and not always from closely related grades. Not infrequently a class comprises pupils from the third to the ninth grades. To be sure, the younger children, the so-called "helpers," are supposed to assist the older; but their presence renders difficult concentration of attention upon the needs of the advanced pupils.

The time allowance for cooking is unusually liberal. On the basis of 2 hours per day for 5 days a week for 13 weeks, 130 hours are offered as compared with 2 hours per week for 40 weeks in the average school system. On the basis of the minimum of 1 hour per day for 10 weeks, 50 hours are devoted to this subject. But the allowance does not work out in practice. Term lengths vary in the different schools; the instruction periods are sometimes one hour, sometimes two. Moreover, the groups are in continuous flux. Pupils are withdrawn in the course of a term; new pupils are admitted irregularly. Thus, for example, eighth grade pupils at Emerson had one hour of cooking daily in the first term of 1915–16, while those who took cooking in the second term had twice as much. At Froebel, on the

other hand, the eighth grade pupils were enrolled for two hours during the first and second terms, but in the other terms for a single period. Again, the helper system extends at Emerson as low as the third grade, but at Froebel not below the fourth.

The teachers fall into three groups. Emerson, Froebel, and Jefferson have professionally trained instructors. Their salaries range from $600 to $1,000. At Glen Park a regular teacher with slight special preparation guides the work, and at Beveridge a practical housekeeper, with no professional training, is in charge. Practical housekeepers receive from $40 to $65 a month.

As stated before, the work in cooking centers about the school luncheon. Many of the children go home at the noon recess; many get their entire luncheon at school, while others bring a luncheon from home, supplementing it with hot soup, cocoa, or dessert. The lunch rooms are open from 11:15 to 1:15. During 1915–16 Emerson served 44,582 persons, including teachers and guests; Froebel, 17,842; and Jefferson, 7,889. The quality of the food is good, the prices are reasonable. The average luncheon charge per person at Emerson was 13.9 cents; at Froebel, 14.2 cents; and at Jefferson, 15 cents.

The entire operating expenses of the cooking departments, with the exception of fuel and the salaries of the instructors at Emerson and Froebel and half the salary of the teacher at Jefferson, were met from the proceeds of the cafeteria. The experience of these schools thus demonstrates that cooking departments of the Gary

type may be operated, after the original capital outlay, without cost to the system, other than for minor items and for the salaries of professionally trained teachers, and may even be made to pay a part of these expenses.

A single or simple verdict on the instruction in cooking at Gary is impossible, for there are two sides to almost every one of its characteristic features. For example, the introduction of domestic arts into the lower grades through the helper system revives in a measure the wholesome participation of the child in the activities of the home—an order now all too rapidly passing away. But the helper system, as has been pointed out in other connections, is not free from dangers and drawbacks. Children cannot really gain unless they are helping older persons who fully understand what they are engaged in doing. Too often the older girls do not measure up to this standard. The instructors labor therefore at a threefold task—they guide the older girls, their proper task, keep the helpers out of mischief, and must have the school luncheon ready at the stroke of eleven. Under this burden the capable instructor becomes discouraged; the weak instructor solves the problem by turning over to the practical cook the preparation of the important dishes.

So also the cafeteria. Much is to be said in its favor. Pupils learn to work with proper regard for time, to handle quantities, to consider money values, to contrive dietetic combinations. Thus the cafeteria not only supplies the school lunch, but enlarges the scope of school work in

cooking and gives practical point to the child's effort and interest. But danger lurks in the division of responsibility. One and the same individual at one and the same time teaches cooking and conducts a commercial enterprise; few persons are equally interested and equally effective in both fields. When, for example, the instructor's attention inclines to the commercial side, the pupil suffers. Little or no risk can be taken with the food, for the quantities are large and the hour approaches. The practical cook therefore scarcely realizes how often she prompts the pupils or does things for them; nor does the teacher realize how small a part of the responsibility for the menu is borne by the children. The theory that children must learn to cook by cooking is sound. But, in practice, the importance of the interests at stake seriously infringes on educational independence. In the main, the exigencies of the situation tie the pupils to recipes—paid helpers and instructors constantly aiding even when recipes are followed. So wedded are the pupils to recipes that they are well nigh helpless without them.

Practical and written individual tests were given to pupils in the higher elementary grades in order to ascertain what they could do and with what degree of intelligence. They were asked, for example, to cook potatoes, to bake a cake, to prepare a salad or dessert. In a majority of cases, the results were satisfactory, except for the fact that all the pupils used recipes, failures occurring even under these conditions. Written questions requiring the pupils to explain some of the funda-

trained teacher, who also teaches geography and history. At Froebel, the domestic science instructor directs the work. In each school there is a practical woman assistant, and these assistants do most of the teaching. This arrangement should bring about an admirable balance. The practical woman learns approved methods of instruction and comes to appreciate the step-by-step explanation necessary in guiding pupils, while the professionally trained teacher learns the "short cuts" of trade work.

It would be difficult to find a harder working corps of trade assistants than those in the sewing departments of Emerson and Froebel. They teach seven hours a day and are constantly on the alert. The teaching is highly individualized, and, although the pupils are assembled in classes, no two members are likely to be at work on the same kind of article, or to be at the same point even if making the same thing. Each step is taught to the individual child as it comes up.

There is no doubt that sewing instruction in the past has erred by too close application to the A, B, C's of technique, and by devoting too much time to drill on valueless objects. Gary has done well to break away from this lock step procedure. But in attempting to construct a course in sewing around personal and family needs, it is quite possible that Gary has gone to the other extreme.

The Gary work in sewing assumes that the reality of the task assures the child's interest and that, as compared with this, logical sequence in the tasks set is of inferior

Sewing Room—Froebel School

importance. The proposition cannot, however, be accepted in this simple form. While the older model exercises have been rightly banished, some form of regular progress is unquestionably indispensable. It is the teacher's business to advance the child more or less regularly through the main steps of plain sewing, dressmaking, and millinery, with constant regard at each step for what is possible. Ability to do things and to do them well is desirable, but it is also important that children give attention to the kind and character of the garments required for different purposes, to the worth and quality of different fabrics, to dyes, and to a multitude of other matters essential to the proper clothing of a modern family.

Owing to the lack of appropriate records, it was impossible to determine the amount of sewing the children had had or to judge their accomplishments in the light of the amount of time given to their training. Observations of the classroom work and inspection of garments yielded a few vivid impressions.

In the first place, the standard of accomplishment is by no means high. In the lower grades this may be due to the fact that pupils with little or no prior experience often begin at once to make garments. Under these conditions a finished product of high quality could not be expected. Much of the work of the advanced pupils is also below standard. While it is true that trade work and school instruction differ, still, in so far as the processes are common, the home making standard should equal the

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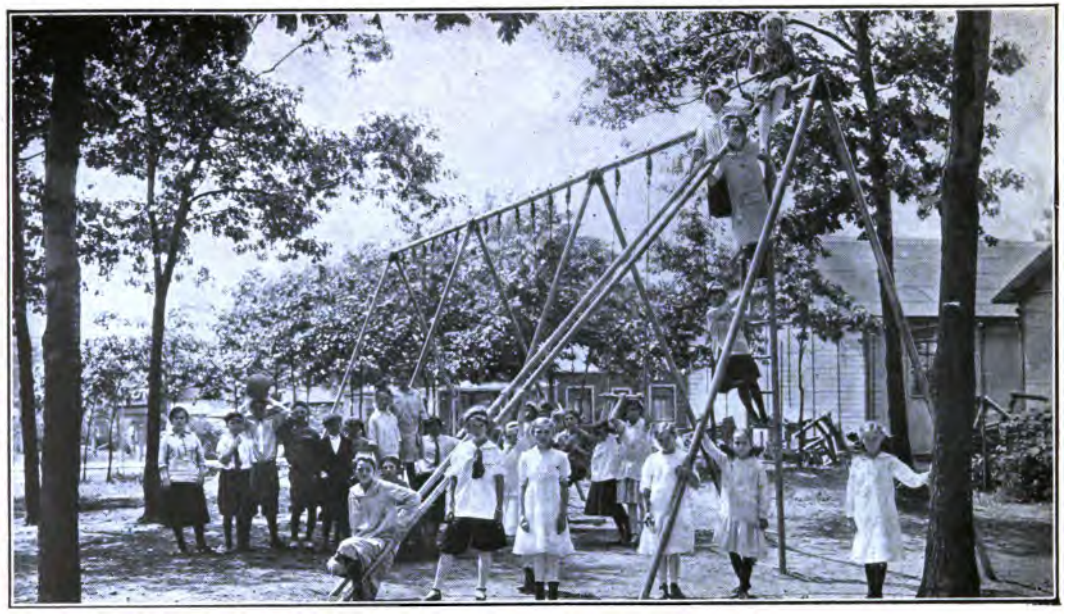
XII. PHYSICAL TRAINING AND PLAY[1]

THE Gary authorities take a broad view of the place of physical education in modern education, giving to it an emphasis double that of the average American city. In the three largest schools, the first four grades ordinarily have two hours of physical training and play daily, and all upper grades at least one hour. Even the very smallest schools give some time to daily exercise and physical recreation.

The facilities for carrying out this program are unusually extensive. Of the nine schools, all except two have gymnasiums, ranging from 600 square feet at 24th Avenue to 7,956 at Froebel. Two schools—Emerson and Froebel—have swimming pools. All have playgrounds, ranging from 5,300 square feet at the two room 24th Avenue school to 84,496 at Emerson. Three—Emerson, Froebel, and Jefferson—possess athletic fields,[2] the smallest, at Jefferson, containing 32,130 square feet, and the largest, at Emerson, 173,602. Thus, however small the school and humble the plant, there are outside provisions for play.

[1]For detailed account, see report on Physical Training and Play, by Lee F. Hanmer.

[2]Those of Emerson and Froebel are owned by the city, but operated by the board of education.



Playground—Glen Park School

Fifteen physical training teachers, as a whole well equipped, have charge of the "play" activities. They receive from $600 to $1,000 per year and average $859; by assisting in special activities outside of the regular day schools they bring their average annual compensation up to $998. The entire amount paid to them for regular day school services amounted in 1915–16 to $11,825.25, making the per pupil cost for teachers alone $2.09 on total enrollment, or $2.86 on average daily attendance.

There is also a supervisor, who, in addition to regular teaching duties, has general jurisdiction over all. His supervisory duties are, however, ill defined, and he has neither the time nor the authority to organize and standardize the instruction, with the result that teachers work more or less independently of each other.

The staff thus made up covers everything done in physical training. Classroom teachers are not required to give any attention whatever to the subject. There is no marching to and from classes, there are no "setting up" or breathing exercises given in the classrooms, and regular teachers do not concern themselves about posture. Only in the small schools on the outskirts of the city do the teachers in charge attend to the physical training. It is possible that here and there a classroom teacher, prompted by personal interest in good posture and right physical development, may give some drill in proper walking, standing, and sitting, but no teacher is expected or required to do so. The

physical education of the children, therefore, centers almost exclusively in the gymnasium, swimming pool, and playground.

The department prefers out of door work, but in practice the gymnasiums are used more than the playgrounds. These are open for classes six hours daily, also for play during the two hour luncheon period and for an hour after school, that is, they are open from 8:15 to 5 o'clock. Accordingly, the physical training teachers have a seven hour day. They teach six hours, look after the gymnasiums during the two hour luncheon period, and also have charge of the after school play activities. Their burdens are further increased by the large classes which they are frequently called upon to handle. Thus a teacher at Jefferson has six groups a day, in all close to 700 pupils. The separate hourly divisions, varying from 76 to 147, contain boys of all school ages and from the first to the eighth grades. Occasionally, groups of a single class of from 12 to 15 pupils are found, but the larger groups are more common. However, the attendance often falls below the scheduled number, because pupils may be excused from play in order to go to the library, to attend religious instruction, or to assist at home, and, further, because one hour of physical training is optional whenever two hours are assigned.

Under these conditions, exercises and games suited to each of the different age and grade groups cannot be given. Consequently, "free play" predominates, dangerously near to the exclusion of everything else. This

"free play" is of an aimless, running about, and "fooling" character that has little value except as a means of "letting off steam" and stimulating blood circulation—both of which are desirable, but may be secured incidentally in connection with a more constructive use of play time. Even in the brief periods of calisthenic exercises it is not unusual to see several pupils standing idly in their places or taking the exercises listlessly and incorrectly. Snappy, vigorous work is not insisted upon. Hence, much of the physical value of the exercise is lost and the habit of doing work in a slipshod manner is formed. The general aspect of playground and gymnasium suggests, indeed, not school training, aiming to bring about definite results, but rather the more or less unorganized, though in itself wholesome, play appropriate to public playgrounds.

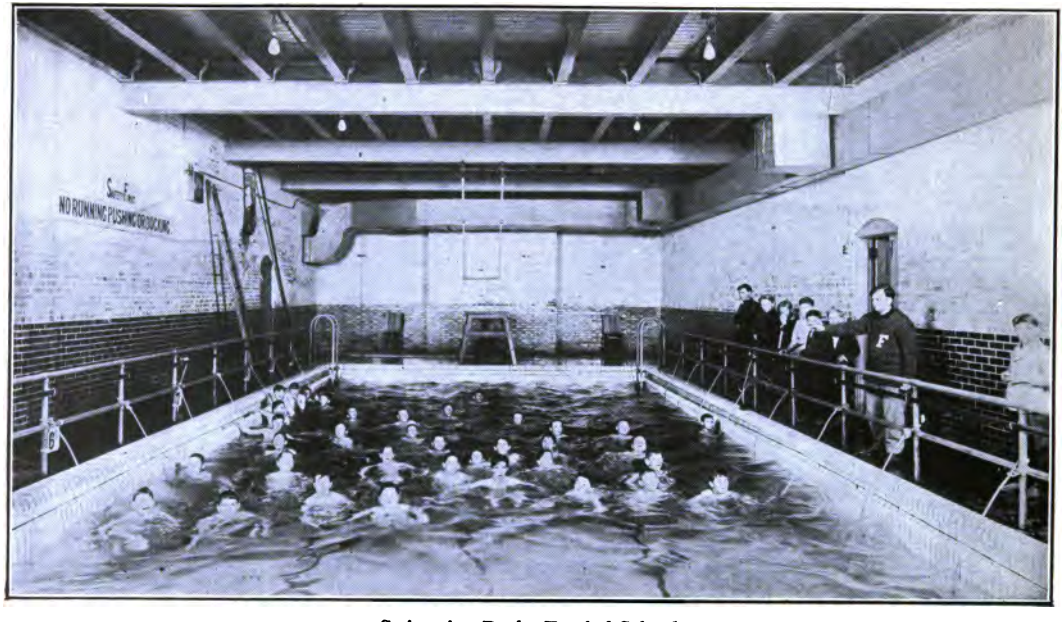
Nor can it be said that proper oversight is employed in checking up the work, for the roll is not regularly called and careful records are not available. Physical examinations are not systematically made and no record of physical development is kept. Several instances were found of late comers in the high school who were to be graduated without having had any physical training or any attention whatever given to their physical development. The physician in charge of medical inspection has recently undertaken, with some volunteer assistance from local hospital nurses, to make physical examinations and keep records of the physical progress of the children. His chief tasks, however, are to guard against the spread of

communicable diseases, examine for defects of eyes, ears, and throat, and exercise general oversight of heating, lighting, ventilation, and sanitation.

The most systematic work seems to be done in the swimming pools, to which all classes go at regular intervals. The children are taught to swim and dive, and tests of skill and speed add zest and interest to this branch of the work. Life saving and first aid are also taught and well mastered by drill. Very little use is made of group leaders, although much might be done in this way in handling the large numbers.

At times efforts are made to correlate the activities of the play periods with the academic work. For instance, drill in numbers is secured by the use of games which require the players to keep their individual or team scores; points are added, penalties subtracted, totals divided to get averages, etc. The pupil who cannot do this is at such a disadvantage, it is claimed, that he feels the necessity of improving his number work. It also gives him a practical demonstration of the value and application of his classroom studies. Much playground apparatus has been made in the school shops and installed by the children under the direction of the physical training teacher. Equipment thus secured seems to be more highly appreciated, and added interest is undoubtedly given to the shop work.

For some years certain physical tests for elementary and secondary school boys have been used quite generally throughout the United States. They are known as



Swimming Pool—Froebel School

the athletic badge tests. These are not a complete measurement of physical efficiency, but serve as a fair indication of heart, lung, and general muscular development. The tests consist of a run, a jump, and a pull-up. Any normally developed boy ten to thirteen years of age should be able to run 60 yards in 8⅘ seconds, do a standing broad jump of 5 feet 9 inches, and pull up four times. Boys of the next group—those having the development of normal thirteen year old boys and older—are expected to do the run in 8 seconds, to jump 6 feet, and to pull up six times. These tests have been accepted and used so generally that the Playground and Recreation Association of America has prepared bronze badges to be awarded to boys who pass all three tests in either group, in order to encourage boys to bring themselves up to a fair standard of physical development. The special emphasis given to play in the Gary schools has afforded abundant opportunity for the boys to run and jump, and the bars, ladders, and rings on their playgrounds provide the means for developing the arm, shoulder, back, and chest muscles that function in the pull-up.

As a basis of comparison the scores of 1,100 boys in other cities have been taken. These tests were made in New Orleans, Seattle, Buffalo, and New York City. The conditions under which the testing was done were practically the same as at Gary—that is, the boys were taken in groups from the classroom and all were tested.

In the pull-up and sixty yard dash, the Gary boys were in every age group inferior to boys from other school

systems; in the standing broad jump, Gary boys of thirteen and fifteen years of age surpass boys of the same age from other schools. Thus, in twenty one possible comparisons the Gary boys excel in only two instances. How far this poor showing may be due to the presence of newcomers, we do not know.

The ability to jump, run, and pull up are not, however, absolutely conclusive indices of general health conditions and all around bodily vigor. Other ways of reaching conclusions on this phase of the Gary school product were sought. The children were observed at their play and in their athletics to determine the effect of strenuous and prolonged activity. It was plainly evident that they were not easily fatigued. Both boys and girls were able to compete in such vigorous and lengthy events as potato races, obstacle races, sack races, basketball and volley ball, without undue exhaustion and with well sustained vigor. This conclusion was borne out by the scores in basketball games with teams from other cities. Practically without exception the scores for Gary mounted up rapidly in the last half of the playing period, indicating comparatively strong power of endurance. Also when "time out" was called and the visiting players would drop to the floor or the benches for a bit of rest, the Gary team would invariably practise passing the ball and shooting baskets.

Comparatively low markings in the tests with simultaneous evidence of a high degree of bodily vigor are not the results that would naturally be expected. But the

Athletic Field—Froebel School

freedom allowed the children and the absence of requirements of exactitude and finish in their work, coupled with the generous amount of time allotted to play and other forms of physical activity, may easily account for these apparently conflicting results. Which is the more important and whether it is not possible to secure both proficiency and all around bodily vigor are questions open to debate. Certain it is that habits of inexactness and lack of finish in doing work are a serious handicap and that health and strong power of endurance are most valuable assets.

The events in the girls' tests are comparatively new, having recently been adopted for general use. There are, therefore, no accumulated records with which to compare them. It seemed desirable, however, to make the tests. The girls measured up no more nearly to the standard requirements than did the boys. Yet, like the boys, in the events requiring sustained effort, such as running and catching, the girls gave evidence of unusual power of endurance.

Both the merits and the defects of the Gary work in physical training lie on the surface. The time allotted affords ample opportunity for orderly exercises of a corrective, body building character, as well as for recreative games and free play. The facilities and equipment are generous; the teachers, on the whole, well trained and enthusiastic. However, the number of pupils in the instruction groups is frequently so large that it is impossible to give attention to individual needs and to use

exercises suited to the widely varying stages of physical development. The result is an excessive use of free play, which too often is hardly more than an aimless running about and scuffling, without definite aim or results. This type of recreation cannot be fully justified on the theory that the schools treat the gymnasiums and playgrounds as public play spaces, although it is true that the long school day includes some of the time children usually have for free play. Such an attitude is well enough for out of school hours, when, undoubtedly, unorganized play on the school grounds is far better for the child than running the streets. But this is not a sound reason for making a similar use of all school time. Satisfactory bodily training and the cure of individual physical defects cannot be obtained in that way.

XIII. AUDITORIUM AND RELIGIOUS INSTRUCTION

THE modern school, we have been saying, holds itself responsible for the proper development of the entire child. It undertakes to train him thoroughly and well in the fundamental school subjects; to stimulate the development of such special abilities as he may possess; to bring him into intelligent relation with the physical and social world in which he lives; to care for his physical well being. These various purposes are met in different ways. Classroom instruction accomplishes one set of ends; shops and laboratories, another; the playground and gymnasium, still another. As one—not, be it noted, the only—method of developing initiative, creating a social spirit and exposing children to a rich variety of stimulating experiences, Gary makes unprecedentedly liberal use of the auditorium.

Most large modern schools possess an auditorium where the entire school assembles for a brief period, sometimes daily, sometimes not oftener than once or twice a week. The assembly promotes school self-consciousness; exercises are held, announcments are made, occasionally a performance is given. At Gary, however, the auditorium in the larger schools is, as a regular and active factor in school work, in fairly continuous use during the day

by groups of classes; it is as much a feature of the regular school day as the shops, the gymnasium, or the laboratory.

On the educational side, the theory underlying the extended use of the auditorium may be stated as follows:

The child is eager for constructive and creative opportunities; he grows in power, in self-control, in interest, in ability to coöperate through doing things with, for, and in the presence of his fellows. The auditorium gives him an incentive to organize and practise activities of every conceivable kind. On one occasion he may, with or without the assistance of his classmates, present to an audience of his fellows the result of his efforts to master a regular classroom task; on another, a program—literary, musical, or dramatic—deliberately put together for the purpose; or again, the entire group may be assembled to listen to a lecture or demonstration by a competent outsider. From this point of view the extended use of the auditorium is based on the proposition that large groups of children at approximately the same stage of development can advantageously be brought together to participate systematically in activities of certain types.

There is also another consideration to be kept in mind. The child's development is compounded of positive and definite increases in knowledge or skill plus the enlarging but unorganized volume of contacts, associations and interests which constitute what may be called his mental or spiritual background. If these contacts are varied

and significant, one's general intellectual life is correspondingly full or rich; if they are few and weak, one's general intellectual life is meager. Environments vary enormously in the value and suggestiveness of what they thus offer to growing children, just as individuals vary enormously in their absorptive capacity. Generally speaking, a new country is deficient in cultural stimulus; new communities, by reason of their composition, their brief existence, and their pressing practical needs, are likewise lacking in background. The school may, under such circumstances, try to relieve the unfavorable environment by giving the child informally a wide range of insights and experiences. The auditorium at Gary is employed for this purpose. To children whose daily lives pass in the unattractive setting of a new industrial community, the auditorium affords from time to time glimpses of natural wonders, of foreign cities, of ancient ruins. It ministers to the child's vagrant interests and to his appreciative needs. The classroom is not, of course, expected to ignore these interests; but the auditorium can deal with situations difficult, if not impossible, in the classroom. If, in a word, it is good for children to attend concerts, to go on excursions, to visit factories, to listen to lectures, to take part in plays—even though the precise benefit cannot be measured—then the auditorium exercise representative of such activities and interests has a value, especially in the case of children whose opportunities for enjoyment and enlargement of horizon are meager. This, then, is the second point made in

favor of Gary's larger use of the auditorium—that certain types of activity there developed are calculated to enrich the child's experience and to stimulate the imagination.

It must be admitted that of all the features of the Gary schools, use of the auditorium on the present scale is the most highly experimental. Of the nine schools, the Froebel, the Emerson, and perhaps one may add the Jefferson, each contain a well built auditorium; at Beveridge and Glen Park, a former classroom is used in order to provide a more or less tolerable makeshift; the four small schools have neither auditorium nor regular auditorium exercises. The Emerson auditorium seats 764; the Froebel, 833; the Jefferson, 234. The acoustics of the Froebel and Jefferson are good, of the Emerson, unsatisfactory, although said to have been recently improved.

The problems connected with the management of the auditorium reduce to three: (1) proper grouping of pupils, so that the group in attendance is fairly homogeneous; (2) management; (3) content of programs. We shall discuss these problems in order.

An auditorium group to which a film, a lecture, a concert, or an organized performance of some sort is presented need not, obviously, be as homogeneous as a class formed to receive specific instruction. On the other hand, it is not practicable to offer intellectual entertainment to a wholly miscellaneous assemblage. Theoretically, the Gary auditorium brings together at any one period groups made up of classes not too widely disparate. The kindergarten and beginning classes do

Auditorium—Emerson School

not usually participate at all. The remaining classes are divided into four groups, grades 1 to 3 forming one group, grades 4 to 6, a second, grades 7 to 9, a third, and grades 10 to 12, a fourth.

This alignment is, however, frequently disturbed, as the auditorium programs of Emerson and Froebel show.[1] For example, at Emerson, for the 3:15 period, the group includes classes from the fourth to the eighth grade. Similarly, at Froebel, the 9:15 group comprises classes from the first to the fourth grade, and the 3:15 period, from the third to the sixth grade. However, in the larger schools when lower grade children are listed for auditorium with upper classes—for example, a fourth grade with an eighth grade—the smaller children do not go to the main auditorium, but report to the expression teacher for half of the period and to the music teacher for the other half. Even with this precaution, the grouping is not always fortunate.

The groups vary considerably in size. They range in Emerson from two classes, with an enrollment of 85, to five classes, with a membership of 157; and in Froebel, from five to nine classes, with from 135 to 276 children. These differences do not spring from theory; they are rather the natural outcome of difficulties encountered in making up the program for the entire school. When pupils provide the entertainment—report on a visit to the city bakeries or on experiments illustrative of class work—the size of the groups may prove a serious

[1]See page 166.

AUDITORIUM GROUPS AT EMERSON AND FROEBEL
SPRING TERM 1915–16

	8:15 TO 9:15	9:15 TO 10:15	10:15 TO 11:15	11:15 TO 12:15	12:15 TO 1:15	1:15 TO 2:15	2:15 TO 3:15	3:15 TO 4:15
			EMERSON					
Number of classes.	3	3	5			4	2	4
Number of pupils.	101	123	157			125	85	156
Grade span.....	6A to 8A	1A to 4C	9 to 12			9 to 12	1C to 3B	4A to 8B
			FROEBEL					
Number of classes.	7	9	7			5	8	8
Number of pupils.	219	276	223			135	293	264
Grade span.....	4B to 6B	1A to 4C	6B to 11			6A to 10	1B to 3A	3C to 6 B

factor, as children's voices do not carry far. In general, however, the size of the group is of secondary importance, provided only the group is sufficiently homogeneous and the program well adapted.

A uniform system of management has not been evolved and is probably not desirable, since the schools vary so much in scope, size, and facilities. Emerson and Froebel might indeed follow the same plan, just as the smaller schools on the outskirts of the town may find a common solution; but the two solutions could not possibly be identical. At present the schools are experimenting independently, while endeavoring to keep in touch with one another through a conference committee of auditorium heads and workers, which meets at regular intervals. It must be remembered, however, that, though the auditorium has from the first received unusual emphasis at Gary, it is, on the present scale of use, only three years old. It is therefore not to be wondered at that its problems have not been as yet completely formulated or solved.

At the Emerson school three years ago no particular person was responsible for program or management, the teachers simply taking turns; during the last two years, however, the teacher of English and the teacher of physics constituted a committee of management. At the Froebel school there has recently been a special auditorium head, whose business it has been to provide the program; at the Jefferson school the teachers of music and expression divide the responsibility for the audito-

rium, other teachers giving occasional programs; at the Beveridge two teachers give their entire time to this work. In all cases those in charge of the auditorium arrange with the teachers who are to present programs at future dates; from time to time they procure outside speakers or performers. At the Froebel each teacher was responsible for the program eight times in the course of the school year, and the same program was repeated four times to different audiences during the day, sometimes with different groups of children taking part. At the Emerson the individual teacher became responsible for an exercise every three or four weeks. There were twelve regular auditorium sessions weekly, two each on four days and four on Thursday. At the Jefferson, as there is only a small staff, a teacher takes charge of an auditorium period on the average once a week. Occasionally the arrangements made may be disturbed in order to take advantage of some unexpected opportunity.

Whatever the system of management adopted, a successful auditorium exercise must be characterized by good group discipline. Irregular attendance, lack of comprehension or interest are disintegrating in their general effects. A well executed program adapted to the particular audience assembled develops group spirit, stimulates emulation, and makes some, even if an infinitesimal, contribution to the child's slowly and mysteriously accumulating stock of ideas and impressions. In point of discipline, the various schools differ widely. Generally speaking, exceptions are freely allowed in the

matter of attendance; children are excused to attend religious classes, for music, or other individual causes; there are no records to show to what extent such irregularities occur. Also, in just the opposite direction, unexpected elements are introduced, when classes or portions of classes, their regular routine being interrupted, are added to the group that chances at that hour to occupy the auditorium. The auditorium leaders differ also in the ease and completeness with which they guide or control the group. Some are quite ineffective, with the result that the hour is worse than wasted; others succeed even when the program lacks holding power.

An auditorium exercise is planned to last within a few minutes of an hour. The precise manner of disposing of the time varies with the resources of the school. At the Jefferson, for example, a few minutes are spent in taking attendance, twenty or twenty five minutes are devoted to music, vocal and instrumental, five minutes to marching, the remaining half hour or less to the day's feature—an exercise, a film, or a lecture. At the two large schools, the material, though naturally more varied, is of the same general character; information films are exhibited, classes or individuals present subjects that have been prepared for the purpose, individuals or the school orchestra render musical numbers, a teacher—less and less frequently an outsider—gives a lecture or demonstration. The manager searches the school for work adapted to auditorium exhibition; the laboratories, the shops, the playground, and the classrooms, as regularly conducted,

furnish usable material. Again, the teacher, in preparation for her coming turn, undertakes a special task, sometimes with an individual, sometimes with a group. Thus, recitations, debates, projects, films, dramatic exhibitions, games, music, lectures, and demonstrations all figure in the activities of the auditorium.

At its best, the auditorium is a forum where a pupil, a group, a teacher, or an outsider may make a definite presentation of one kind or another to a fairly homogeneous, interested, self-controlled audience of school children. Here, for example, is a group of, say, 250 children, who, entering the hall in an easy but orderly manner, sit buzzing and expectant—like a mature audience—until the teacher in charge rises and by her presence on the platform procures complete quiet. The preliminaries take place without incident. To-day the feature of the program is a discussion of swimming by the high school girl who, under the direction of the English teacher, had prepared an elaborate and highly creditable memorandum on that subject; to-morrow a high school boy will expound the comparative merits of different automobiles from the salesman's point of view; on another occasion the subject of folk dancing will be presented with illustrative dances prepared by the teacher of physical training. Again, an industrial film—the process of hat making, for example—is exhibited and explained; or a travel film, touching countries whose history or literature has been studied in regular class work. A vigorous and telling address by a demonstrator of the International Harvester Company

on the topic "Swat the Fly" fills one day; musical or dramatic numbers fill the next; again, a science class makes a demonstration of their work on the subject of liquid air; an outdoor group does the same for their bird work, or their playground activities.

So much for the auditorium at its best. At its worst, the auditorium simply consumes an hour of the child's time, alternately boring and amusing him with material of little or no educative value because it is either inherently insignificant or poorly done. Much of the work, especially in the smaller schools, is of this sort. Here, for example, an inferior film is run off without comment by a listless teacher to a group of children whose pennies already procure them too much diversion of precisely this kind; again, a group of a dozen children mount the platform to give a poor exhibition in reading to an audience that has nothing to gain even were the performance a good one. At times more promising material is spoiled by lack of careful and intelligent preparation; not infrequently an audience ineffectually handled affects the youthful performers disastrously.

At this time final judgment cannot be pronounced on the Gary auditorium. It demands a large amount of time on the daily schedule; it imposes an additional task and tax upon teachers. Can the outcome justify the cost? It is too early to say. Something depends on the possibility of finding and retaining leaders who possess marked managerial capacity—leaders who can coöperate with the teachers in composing programs and training

the participants, while controlling the audience through its own effort rather than through police authority; something—a good deal, probably—depends on the efficiency of the regular school. The auditorium is expected to be an educative exercise; on the other hand, it is also a source of recreation, enjoyment, and amusement. This comes in happily, if elsewhere high standards of individual performance are upheld; it may do harm if the general attitude is lax.

Whatever yet remains in doubt, on one point a definite opinion may be formed. The makeshift auditorium in a small school, without leadership and as a practical substitute for class work in music and literature, is a failure. A large school may ultimately discover how to keep its frequent auditorium periods at a level high enough to justify the effort. But for small schools, with their preponderance of little children and their limited resources in teachers, opportunities, and facilities, the outlook is unpromising.

A word may be inserted at this point regarding another highly experimental innovation, viz., the arrangement for religious instruction. In 1912 the Gary schools proposed an arrangement which would enable the churches of the city to give religious instruction twice weekly during school hours to children whose parents so desired. In general, religious instruction was meant to be an alternative to the auditorium, so that children attending a class in religion would be excused on certain days from auditorium exercises; but in practice they are as frequently

excused from physical training and play. The schools, however, explicitly disavow responsibility for the child's attendance on the class in religion; he is "to be in the custody of his family," his attendance being a matter between the church and the home, not the church and the school. The schools have therefore no part in determining the character or aims of the instruction offered.

Of the nine Gary schools, religious instruction was, in 1915–16, actively carried on only in connection with the Jefferson school, where seven churches coöperated. At the Emerson, one church, five blocks distant, coöperated; at the Froebel, two neighborhood houses and a mission; at Glen Park, two churches. Eight hundred and forty two children out of a total school enrollment of 5,654 were in attendance.

It is too early to express a final opinion as to the feasibility or importance of this feature. As has been stated, it has not yet proved practicable to develop it generally. Whether it is wise for the school to release its hold upon the child during school hours is open to question; again, coöperation between church and state involves a change from our traditional policy, according to which church and state pursue their respective ends independently of each other. It remains to be ascertained how American sentiment will react to this innovation.

XIV. ENROLLMENT, ATTENDANCE AND PUPIL PROGRESS[1]

THE purpose of the public school is to pass every child of the community through a complete elementary, if not a high school, course. As yet no system of public schools has by any means realized this purpose. The extent to which a given system succeeds is indicated (1) by its success in enrolling the children, (2) by their attendance, and (3) by their progress through the schools.

The Indiana law requires that the school census include all unmarried persons between the ages of six and twenty one years. From a practical point of view, however, a distinction must be drawn between the children reported by the census, all of whom are legally entitled to attend school, and those who under existing social conditions may reasonably be expected to attend. Obviously it is unreasonable to expect all children to remain at school until they are twenty one years of age. For our present purposes, we may assume that the ideal school population would include children from six to

[1]For description of the records and reports on which this chapter, as well as other general chapters, is based, see Appendix B, page 211.

eighteen years of age. But, even so, a qualification needs to be borne in mind. The compulsory school period in Indiana ends with the pupil's fourteenth birthday. Any child is legally free to leave school the moment he reaches fourteen.

However school population is defined, public schools never enroll all eligible children. Some parents prefer private and parochial schools, while many children, particularly of high school age, drop out. Gary is not unusual in these respects. Private schools are not so strong as in older communities, but there are several parochial schools, and the general complexion of the population, foreign and industrial as it is, augments the difficulty of holding young people in school. In fact, a comparison by ages of the children enumerated in the school census of May, 1916, and the children reported in school at that time shows that the Gary public schools enroll only 63 per cent. of those from six to eighteen, inclusive, private and parochial schools, 15 per cent., while 22 per cent. are out of school altogether.[1] If, however, the children of different ages are grouped into children of elementary school age (those from six to fourteen), and of high school age (those from fifteen to eighteen), the public schools enroll 74 per cent. of the former and 24 per cent. of the latter. (Figure 17.)[2]

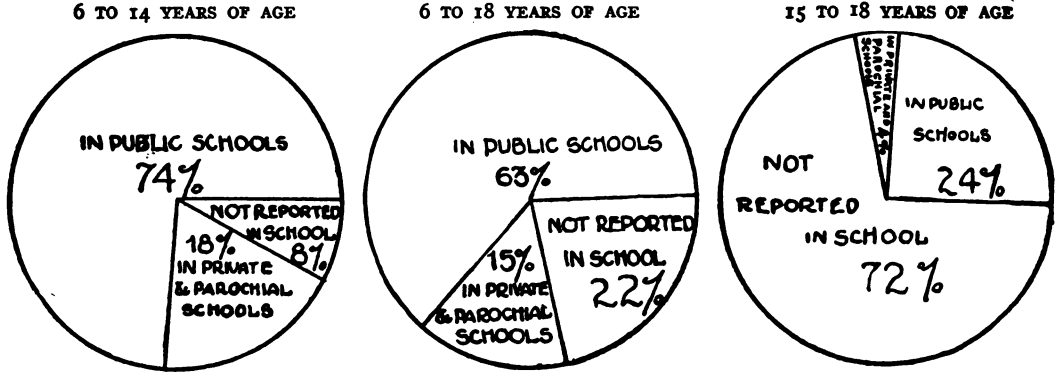
The tendency at Gary of children six years of age to

[1] Table XXVIII, Appendix D, page 248.

[2] See page 176.

FIGURE 17

PROPORTION OF POPULATION REPORTED IN SCHOOLS



delay beginning school—19 per cent. not being enrolled—is readily understood, because the distances they have to go are often long and there are many foreigners and newcomers. After six, the public, private, and parochial schools together reach practically all children up to fourteen, about a fifth going to private and parochial schools. But the attracting power of both public and other schools wanes decidedly with children fourteen and over. Still, the Gary schools seem to be unusually successful in attracting children fourteen and fifteen years of age, who are beyond the compulsory attendance age, as they enroll 67 per cent. of the former and 44 per cent. of the latter. But that

20 out of each 100, fourteen years of age,
48 out of each 100, fifteen years of age,
70 out of each 100, sixteen years of age,
83 out of each 100, seventeen years of age, and
87 out of each 100, eighteen years of age,

should be out of school altogether shows unsatisfactory conditions at Gary, as is the case in the country at large.[1]

But mere enrollment is not enough. Pupils must also be held to continuous and regular attendance. Whether or not they are thus held can be inferred, in the first instance, from the number dropping out before completing the course.

Few school systems have complete data either as to the number dropping out or as to the age and grade at

[1]Tables XXVIII, XXIX, and XXX, Appendix D, pages 248–250.

which they drop out, and the data at Gary are altogether inadequate on these points. Nevertheless, from such data as are available, the proportion of the enrollment dropping from the Gary schools during the school year appears to be somewhat smaller than is common. Furthermore, probably more of such withdrawals are due at Gary to changes in population than is the case in older and more settled cities.

In the year 1915–16, the percentage dropping out ranged in the elementary school from 9 per cent. in the second and fourth grades to 22 per cent. in the eighth; in the high school from 4 per cent. in the twelfth grade to 23 per cent. in the ninth.[1] The average is 14 per cent.; Pasadena, Cal., reports, for 1915–16, 16 per cent.; Decatur, Ill., 16 per cent.; New Britain, Conn., 15 per cent; Williamsport, Pa., 11 per cent.; and Newton, Mass., 8 per cent.[2] As elsewhere, the largest numbers, relatively, drop from the last three elementary grades and the first year of the high school.

It also appears that children begin to drop out of the Gary schools at about the usual ages (fourteen and thereafter), and for the usual causes (family moving from the city, to go to work, personal and family ill-

[1]Table XXXI, Appendix D, page 251.

[2]Public school reports for 1915-16 for the respective cities, with the exception of Decatur, which is for 1914–15. These percentages are at best only suggestive. Withdrawal is not always defined; hence the differences in the per cent. of withdrawals may be more a matter of definition than actual differences in holding power.

ness, etc.). The Gary data bearing on these points are, however, unusually incomplete. No reasons are reported for 24 per cent. of the withdrawals; there is no record of the grade to which 8 per cent. of those withdrawing belonged;[1] and no record of the ages of 14 per cent. of the entire number withdrawn.[2]

Again, the holding power of the schools is indicated by regularity of attendance. A common method of expressing this is to give the per cent. of the total enrollment in average daily attendance. When so expressed, attendance since 1910 has ranged at Gary from 67 per cent. in 1911–12 to 76 per cent. in 1914–15, with 73 per cent. for 1915–16.[3] This method of expressing regularity of attendance is, however, of little significance, since total enrollment includes all children in school at any time during the year, whether on the register for the entire session or for a brief period only. We need to know rather the regularity of attendance on the part of children actively on the roll a given length of time.[4] This involves comparison of the days enrolled with days present during enrollment. For example, if a pupil is enrolled 200 days and present 160, his per cent. of attendance is 80. Regularity of attendance when so computed runs for the Gary system as a whole as high as 90 per cent. and as low as 86, with

[1] Table XXXI, Appendix D, page 251.

[2] Table XXXII, Appendix D, page 252.

[3] Table XXXIII, Appendix D, page 253.

[4] We ought also to know the time lost by late entrance and the causes thereof.

89 per cent. for 1915–16.[1] That children should be out of school after they enroll slightly more than a tenth of the time is not unusual.

Three facts in this connection are worthy of note: First, despite the differences among the several schools in facilities and programs, and despite the differences in nationality and economic status of the children, the per cent. of attendance varies little from school to school, and in no case is it far from the record for the city as a whole. Second, children entering school late attend, when once they are enrolled, about as regularly as those in school from the beginning, an indication probably that the late entrants are mostly newcomers and not truant children.[2] Finally, children living in Gary appear to enter school mostly on the opening day, and the number entering at each later ten day interval does not seem large enough to disturb the progress of school work.[3]

We have now seen to what extent the Gary schools succeed in getting the children of the community in school, and to what extent they succeed in holding them to continuous and regular attendance. It remains to consider how regularly children advance through the schools.

A common elementary school measure of whether or not children are where they should be on their way

[1]Table XXXIV, Appendix D, page 253.

[2]Table XXXV, Appendix D, page 253 A.

[3]Table XXXVI, Appendix D, page 254.

through the school is to determine whether or not they are entering or have completed the grade proper to their age. The significance of this measure lies in the fact that when school children fall too far behind their proper grade, they are likely to drop out even before completing the elementary course, to say nothing of the high school course. When the elementary pupils of Gary are grouped according to the grade proper to their age,[1] 22 per cent. are under age (that is, ahead of their proper grade), 40 per cent. are normal age (that is, in their proper grade), and 38 per cent. are over age (that is, behind their proper grade).[2] (Figure 18.)[3]

When compared with other cities, Gary is doing as well as they do, but probably no better, in advancing children through the school. The basis of this conclusion is admittedly narrow, for we have data fairly comparable from only three other cities, Dubuque, Ia., Rockford, Ill., and Rochester, N. Y., which are as follows:

CITY	PER CENT. UNDER AGE	PER CENT. NORMAL AGE	PER CENT. OVER AGE
Dubuque	18	49	33
Rockford	21	42	37
Rochester	9	53	38
Gary	22	40	38

[1]There are a number of recognized methods of computing over age, each yielding different results. In this report we have used the Bachman method. For different methods and differences in results, see Appendix C, page 212.

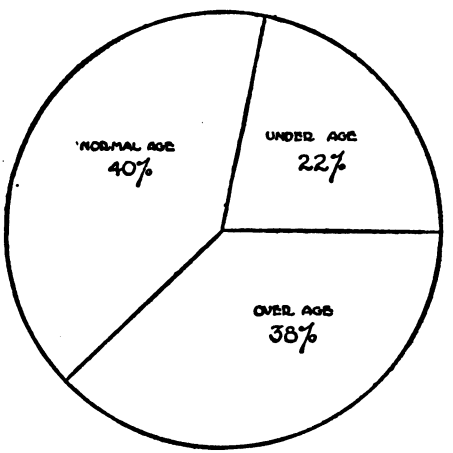
[2]Tables XXXVII and XXXVII-A, Appendix D, pages 254A and 255.

[3]See page 182.

Gary, it will be noted, has more children ahead of their proper grade than any one of the three cities in question, fewer children in their proper grade, and as many behind their proper grade as Rochester (38 per cent.) and more than either Rockford or Dubuque.

FIGURE 18

PROPORTION OF ELEMENTARY CHILDREN UNDER AGE, NORMAL AGE, AND OVER AGE



As in other systems, in consequence of differences in organization, quality of instruction, promotion standards, and especially pupil ability, the age-grade status of the children is not uniform for the several schools. At Gary the widest differences occur as between Jefferson and Froebel; the children under age range from 10 per

cent. in Froebel to 35 per cent. in Jefferson, and the over age from 56 to 23 per cent. respectively. Jefferson not only makes the best showing of all, but conditions there are remarkable, more children being ahead than behind their grade—35 per cent. as against 23 per cent.[1]

More significant than the number of over age children in a system is the number of years these children are behind their proper grade. A child less than a year over age may, especially if in the lower grades, catch up with his class; but it is next to impossible for him to do so if he is ten or twelve years of age and two, three, or four years behind other children of his age.

Of the 1,311 over age children at Gary, 789, or 60 per cent., are less than a year behind; 353, or 27 per cent., are one and less than two years behind; 119, or 9 per cent., are two and less than three years behind; 50, or 4 per cent., are three years or more behind.[2]

At that, over age is probably no more serious at Gary than elsewhere, as the following table shows:

City	Length of Over Age			
	PER CENT. LESS THAN ONE YEAR	PER CENT. ONE YEAR AND LESS THAN TWO	PER CENT. TWO YEARS AND LESS THAN THREE	PER CENT. THREE OR MORE YEARS
Dubuque....	62	26	8	4
Rockford....	60	27	9	4
Rochester...	62	23	10	5
Gary.....	60	27	9	4

[1]Table XXXVIII, Appendix D, page 256.
[2]Table XXXIX, Appendix D, page 257.

In slowly growing cities, backwardness in this respect is attributed to over age at entrance, or to the failure of the schools to advance pupils regularly, or to both causes. Failure of pupils to make proper progress at Gary is not so easily disposed of. For out of 3,422 enrolled in the elementary school, 1,372, or 40 per cent., had started school elsewhere.[1] For example, of the June elementary school graduating class, only 15 of the 95 had had all their work at Gary; the remaining 80 entered from other systems, as follows:

9 in first grade, A and B divisions
12 in second grade
15 in third grade
12 in fourth grade
12 in fifth grade
6 in sixth grade
7 in seventh grade
6 in eighth grade
1 unknown

Under these conditions, the failure of other systems to advance pupils regularly may account, in part, for the fact that certain children in the Gary schools are now behind their grades. In fact, 24 per cent. of the children coming from other systems were, on entrance, ahead of, and 40 per cent. behind, their proper grades.[2] At present 20 per cent. of these children are under and 48 per cent. are over age. While in the Gary schools, the pro-

[1] Table XL, Appendix D, page 258.
[2] Table XLI, Appendix D, page 259.

portion ahead of their grade thus decreased 4 per cent. and that behind increased 8 per cent.

Nor can all the present over age among children who started their school life at Gary be charged directly to the Gary schools. For, while 32 per cent. of these children are now over age, the Gary schools are directly responsible for only 18 per cent., as 14 per cent. of them were behind on entrance.[1] The full responsibility of the Gary schools is, however, somewhat larger, for in the meanwhile the initial proportion of under age children has decreased 8 per cent.; besides, children in relatively large numbers enter young, which tends to lessen the number falling behind.

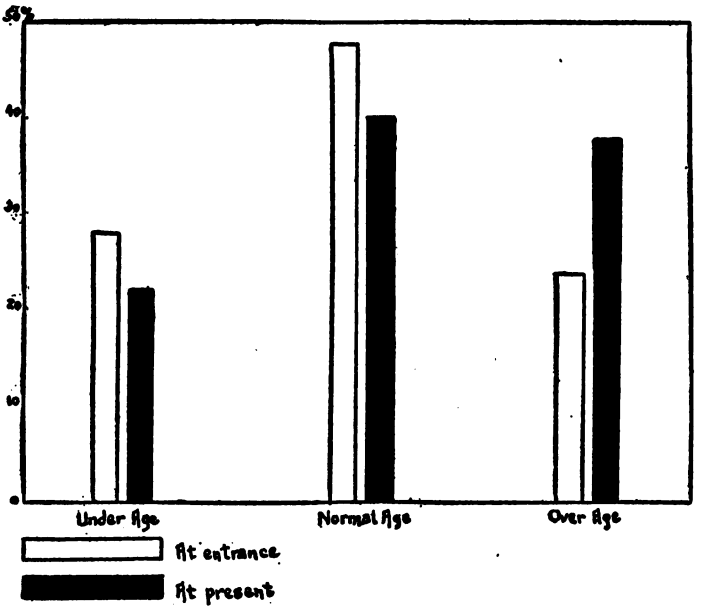
If these two groups—those having attended other schools and those starting school at Gary—are now combined, the actual position of the Gary schools in regard to pupil progress becomes clear.[2] The initial age-grade status of all Gary children—28 per cent. ahead of grade, 48 per cent. up to grade, and 24 per cent. behind grade—contributes to the making of a good showing later on. Failure while in the Gary schools to progress regularly reduced the initial proportion of under age 6 per cent.,of normal age, 8 per cent., and increased the over age 14 per cent. (Figure 19.)[3] Whether these unfavorable changes are large or small, we do not know, as there are no comparable data available. We incline to regard them as small.

[1]Table XLII, Appendix D, page 260.

[2]Table XLIII, Appendix D, page 261.

[3]Page 186.

FIGURE 19
INITIAL AND PRESENT AGE-GRADE STATUS OF ALL GARY CHILDREN



Support for this view is found when the children now under age, of normal age, and over age are grouped according to rapid, normal, and slow progress after entering the Gary schools. A child's progress is normal when he is credited with as many terms' work as he has been terms in school, i. e., when he advances without interruption or backset term by term. On this basis, when he has more credits than terms in school he is rapid, and when he has less, he is slow. When so grouped, 19 per

cent. of all the elementary children are rapid, 29 per cent. normal, and 52 per cent. slow.[1] Thus, half of the children failed to keep up, but the Gary schools held the other half to normal or better, and of the half falling behind, 41 per cent. lost only a single term.

Our position is also supported by a comparison between the total number of terms all pupils on the register have been enrolled and the total number of terms' work to their combined credit. Those entering the Gary schools from other systems suffered a net loss of 8 per cent., those having attended no other schools, 14 per cent.[2] The greater apparent success of outside children is due to the fact that such children mostly enter the middle and higher grades[3] where the losses for all children are less than in the beginning grades.[4] The average net loss for all children is 12 per cent., which means that 88 per cent. of the entire school advance regularly. To accomplish this result a liberal promotion policy is requisite.

The present organization is, in general, favorable to the regular advancement of children. The main drawback is the lack of special classes, particularly at Froebel, for non-English speaking, backward, or defective children. The three classes for defectives at Froebel, if confined to

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[1]Table XLIV, Appendix D, page 262.

[2]Table XLV, Appendix D, page 263.

[3]Table XL, Appendix D, page 258.

[4]Table XLVI, Appendix D, page 264.

this field, might provide for all such children there; but they now serve for all kinds of children needing special assistance. The one class of backward pupils, composed now of siftings from the primary grades, is inadequate for the 109 children two or more years behind their grade, and the successful care of a school population predominantly foreign requires special classes for non-English speaking pupils. The need for special classes at Jefferson and Emerson is not pressing, but Beveridge, with each third child over age, could certainly make good use of one or more.

Among the favorable factors is the promotion of children three times a year, as well as during term time whenever a child can do the work of the next grade; also the Saturday and summer schools. Saturday is not a regular school day, but the buildings are open and instructors are on duty. Pupils who are falling behind, or who have been absent, or who wish to make two grades in one year, come voluntarily for one or more hours' assistance from their regular weekday teachers. The summer school serves the same end, and is even more effective than the Saturday school in helping over age children to catch up, weak children to make their grade, and ambitious ones to advance more rapidly than their class.

The smallness of the classes in "special work" is also a favorable factor; in the old line studies, however, classes are of the usual size. The average number of pupils on roll in these at the end of the year was 36, half of

the classes having 38 or more and half having less than 38 pupils.[1]

To conclude, whether the advancement of the Gary children through the schools is measured by their present age-grade status or by their progress after taking up school work at Gary, the Gary schools make a creditable showing, particularly if the foreign character of the population is considered and account is taken of the large number of children coming from other systems. But the two measures employed show only whether children have or have not advanced regularly for their age and for their time in school. They shed no light whatever upon educational performance or achievement.

[1]Table XLVII, Appendix D, page 265.

XV. COSTS[1]

NOTHING is easier than comparison of school costs on the basis of printed tables—and, be it added. at once, nothing more misleading. A simple comparison of school costs is absolutely without significance unless the educational advantages for which the expenditures were made are taken into consideration. Thus, a comparison between general or per capita costs in two different cities would be helpful, if substantially identical educational opportunities were offered; such a comparison is, however, worse than useless, if the educational opportunities are notably dissimilar. The same holds even as between different schools within the same system. A comparison of the per capita cost of instruction in one of Gary's portable schools with per capita cost of instruction in the Emerson or Froebel school is meaningless, since the educational opportunities are themselves non-comparable. Education has one cost at the Emerson, another at the Froebel, still another at the Jefferson, because in the three schools mentioned the town buys different opportunities under different conditions. It is therefore difficult to say what is meant

[1]For detailed account, see report on Costs, by Frank P. Bachman and Ralph Bowman.

when costs as such at these three schools are compared, and impossible to say what is meant when they are averaged.

This does not mean, however, that it is useless to study costs. It means simply that there is little to be gained from the exhibition of what may be called lumped costs or unanalyzed costs. Costs may, however, be profitably studied in direct connection with facilities provided, facilities used, opportunities offered, and type of organization employed. If, however, a study of this kind is contemplated, accounts must be so kept as to provide the data therefor. To the extent that such cost accounting systems are uniformly introduced, comparisons will be valid and helpful.

For the present we are compelled to content ourselves with presenting the main items of the Gary costs and showing by their variations how largely the several costs vary within a single system according to the quality of the facilities provided, the greater or less completeness with which they are used, and the educational opportunities offered.

For example, of the three large schools, the cost of the Emerson school—grounds, buildings, and equipment—was $388,886.07; of the Froebel, $433,517.55; of the remodeled Jefferson, $98,309.99. On the basis of actual attendance, these investments represent a capital outlay per pupil of $524.11 at the Emerson school, $288.43 at the Froebel school, and $135.04 at the Jefferson school. The immense discrepancy in these figures is partly as-

cribable to the fact that the opportunities offered are far from uniform, partly to the fact that attendance is up to capacity at the Jefferson and far from capacity at the Emerson. If Gary's own estimate of the capacity of the Emerson and Froebel schools is correct (2,300 in each)—a point as to which there is some doubt—the per capita investment at Emerson would be $169.08, at Froebel, $188.49. A more conservative estimate of capacity would show a per capita plant investment of between $200 and $250. These figures can be fairly compared with plant investment in other cities only on the basis of similar facilities. It means nothing, for example, to allege that, in respect to capital investment, the Gary plan is either dear or cheap as compared with some other plan. Such a comparison is significant only if one compares the investment required by the Gary plan for certain specific opportunities with the investment required by some other plan offering equal opportunities.

The total current expenditures for the entire Gary system (1915–16) were $255,438.41, of which $182,004.39 went for the day school, $21,677.99 for overhead charges (usually added to the day school costs), the balance for Saturday school, night school, etc. The per capita day school expenditure on the basis of average daily attendance was thus $49.29. But this average obscures rather than sets forth the interesting facts, since per capita expense in the three main day schools varies from $34.31 at the Jefferson to $74.64 at the Emerson. The following table exhibits these variations in detail:

SCHOOL	KINDERGARTEN	ELEMENTARY SCHOOL GRADES			HIGH SCHOOL	ALL GRADES
		1 to 5	6 to 8	1 to 8		
Emerson...	$46.83	$64.49	$74.58	$68.75	$90.80	$74.64
Froebel....	40.17	48.51	57.54	50.29	79.22	52.37
Jefferson...	31.67	34.89	33.97	34.64		34.31

In the crucial matter of instruction alone, considerable divergencies exist. In the upper elementary grades, per capita instruction costs vary from $20.99 at the Jefferson to more than double that sum at the Emerson; between Jefferson and Froebel the difference in these grades is also very large. The following table summarizes these facts:

SCHOOL	KINDERGARTEN	ELEMENTARY SCHOOL GRADES			HIGH SCHOOL
		1 to 5	6 to 8	1 to 8	
Emerson.....	$19.93	$37.59	$47.68	$41.85	$63.90
Froebel.....	21.41	29.75	38.78	31.53	60.46
Jefferson.....	18.69	21.91	20.99	21.66	

Still larger variations would be introduced if the other schools were included, while the extreme variation would probably be less if the Emerson school were operating at capacity.

Perhaps the most problematical factor in Gary costs is the cost of the shops. It has been pointed out that these shops serve two purposes—production (including repairs), and education. In the manual training shops,

production is incidental to instruction, whereas the forge, foundry, machine shop, etc., are operated primarily on a production basis. When all shops are taken together, to what extent does productive and repair work pay for the educational opportunities enjoyed? Are the shops practically self-supporting? If so, such industrial education as the Gary boy gets would cost the community nothing.

In the year 1915-16, the sum spent on all shops aggregated $22,535.31. Gary authorities credit the shops with an estimated market value of their products. Owing to the incompleteness of the records, we were unable to determine the total estimated market value placed by the instructors on products of the manual training shops and the paint shop. But in the remaining shops, the instructors placed, in 1915-16, a market value on their products of $16,268, which alone is 72 per cent. of the initial cost of all shops. If, on the other hand, the several shops are credited, as we have done, with only the labor and material cost of their products, the credit allowance for all shops amounts to $12,217.62, or 54 per cent. of their total initial cost; that is, taken altogether, the Gary shops are 54 per cent. self-supporting. If, however, those shops are considered separately which are operated primarily on a productive basis, such as forge, foundry, machine shop, print shop, etc., these shops, when credited with the labor and material cost of their products, are 69 per cent. self-supporting.

The foregoing discussion makes plain that there is no

point in considering school expenditures unless at the same time one considers the return in educational advantages. If one has in mind the Gary plan as embodied in the Froebel and Emerson schools, it is obvious that the plan is not cheap in the sense that its enormously increased opportunities cost actually less than the more limited opportunities of the old red schoolhouse. Of course they cost more, much more, and it is infinitely to its credit that Gary has made the greater investment to achieve the larger purpose. The real question, however, is whether or not the Gary plan costs more for what it gives—whether identical opportunities would cost less on some other plan. For the detailed evidence bearing on this crucial point the reader must consult the technical discussions contained in the volumes on Costs and Organization and Administration. Suffice it here to restate the conclusion there expressed, that, though additional data are desirable, it appears that schools organized on the Gary plan promise an extended and enriched course of study at minimum cost. In other words, the advantages offered by the Gary schools at their best probably cost less than the same advantages on a more conventional plan of school organization.

XVI. CONCLUSION

IN BRINGING this volume to a close, it is perhaps worth while to sum up briefly the pros and cons of a complicated situation.

On the credit side of the ledger must be placed the fact that Gary has adopted, and taken effective steps towards providing facilities for, a large and generous conception of public education. Had Gary played safe, we should find there half a dozen or more square brick "soap-box" buildings, accommodating a dozen classes, each pursuing the usual book studies, a playground, with little or no equipment, perhaps a basement room for manual training, a laboratory, and a cooking room for girls. Provided with this commonplace system, the town would have led a conventional school life—quiet, unoffending, and negatively happy—doing as many others do, doing it about as well as they do it, and satisfied to do just that. Instead, it adopted the progressive, modern conception of school function, formulated its conception in clear terms and with all possible expedition provided facilities adequate to the conception. The adoption and execution of this policy required administrative courage and civic liberality. In one sense there was nothing revolutionary in it, for not

a few schoolmen have adopted this broad conception of public education. But Gary not only adopted this conception in theory—it made realization possible by providing in its main schools the physical conditions needed for its execution. The Froebel and the Emerson schools are not simply fine buildings, that in their environment startle the visitor—they are instruments formed to embody and realize a distinct educational idea. Even the temporary makeshifts required by the exigencies of the situation show an intelligent and serious effort to do what is feasible in the same direction for children unable to attend the well equipped central schools. The extended curriculum is therefore a reality at Gary, and the general movement toward enrichment of the curriculum has been greatly stimulated by Gary's example.

On the credit side of the ledger belongs also Gary's contribution to school organization. There can be no question that a modern plant, consisting of classrooms, shops, gymnasium, laboratories, and auditorium, can be operated on the Gary type of organization so as to accommodate a considerably larger number of children than the same plant operated on the conventional plan. Indeed, the Gary type of organization anticipates such unsatisfactory and deplorable makeshifts, as "part time," by providing on purely educational grounds for the intensive use of all school facilities. Thus, without waiting to be driven by pressure of large numbers, Gary has developed a type of

school organization which permits the effective instruction of the maximum number of children in a plant having modern facilities. From this point of view, the Gary organization is perhaps the most fruitful suggestion yet contributed toward the practical solution of the administrative problems involved in realizing a broad conception of public education.

Finally, Gary has attempted to practise democratic theory in school conduct and discipline. It is a commonplace that arbitrary or military discipline is alien to the American spirit. Coöperation, representing the willing subordination of the individual in the endeavor to achieve necessary and desirable ends, must somehow be procured. In various ways—in classroom, corridors, auditorium, shop, etc.—Gary appeals to the coöperative spirit, relies on it, believes in it, gives it something to do—at times perhaps unwisely and to excess. In any event, the schools are rich in color and movement, they are places where children live as well as learn, places where children obtain educational values, not only through books, but through genuine life activities. The Gary schools make a point not only of the well known measurable abilities, but of happiness and appreciation, which cannot be measured, even though they may be sensed. It does not follow that Gary obtains no results from these efforts, merely because the outcome of its efforts in classroom work is unsatisfactory. The final results of appreciation and stimulus are too subtle, too remote, too readily obscured or augmented by other factors in ex-

perience or environment to be themselves definitely appraised. But evidence that appeal to the appreciative instincts is not made in vain is encountered now here, now there, in the activities, interests, and attitudes of teachers and children alike.

There are, it is clear, two distinct bodies of material employed at Gary, each having its appropriate method of approach: first, definite subjects, that have in the last resort to be "learned" in such wise that the pupil may attain and demonstrate a reasonable degree of mastery; next, æsthetic or other activities, giving wholesome pleasure at the time and tending to establish higher levels of need and taste. The traditional pedagogue concentrates on the first group and relentlessly organizes the subjects contained within it. The philosopher, insisting that at its best education supplies the means of natural growth, emphasizes the second group, not infrequently revolting from systematic presentation and precise results. A really effective school will undoubtedly harmonize the two. It will set up high and definite standards of workmanship for tasks that represent desired skills—spelling, arithmetic, cooking, sewing, or what not—endeavoring to reach these by employing well thought out and well wrought out methods of procedure; it will also provide a variety of experiences of a stimulating and appreciative character, without being overmuch concerned at the moment to decide why they are good, or what good they do, then or thereafter. One gets at Gary the impression of confusion in this matter. The auditorium, for

example, embodies largely the stimulating and appreciative experiences that cannot be closely followed up. But the type of procedure that is natural to the auditorium not infrequently invades the shops, the cafeteria, and the classrooms, as if the passive absorption adapted to the auditorium were a generally applicable educational method.

We thus pass to the debit side of the account. The readers of this volume already know that the execution of the Gary plan is defective. It is of course true that no public school system thus far critically studied has been pronounced satisfactory—satisfactory in the sense that it meets current and reasonable standards of efficiency. It would therefore be manifestly unfair to demand that Gary should fully embody and practically succeed with every item of its varied and extensive program. A good many extenuating considerations may be fairly urged—the newness of the community, the complexities due to the character of the population, the breadth of the conception, the enormous difficulty of obtaining a teaching and supervising staff competent to execute the plan. But after making every possible allowance, it remains to be admitted that in respect to administration and instruction Gary might fairly have been expected to make a better showing.

Fundamentally, the defect is one of administration. No scheme will execute itself. Precisely because the Gary scheme is complicated, extensive, and at some points novel, uncommonly watchful administrative con-

trol is requisite. Such control does not exist. In consequence, results appear to be largely taken for granted. Illustrations in proof of this statement may be drawn from many of the preceding chapters. For example, the present organization assumes that satisfactory educational results are obtained when the plant consists half of regular classrooms and half of special facilities, and these facilities are kept in continuous use. As the plan works out, the groups assembled at Gary in the auditorium or on the playground are large or small, composed of a single grade or many grades, according to the requirements of a schedule constructed on this basis. It would, of course, be most convenient if this somewhat mechanical arrangement proved educationally effective. But does it? Not, in our judgment, without certain cautions and qualifications which Gary has thus far neglected. The "duplicate" school organization should therefore be viewed as an experiment to be watched and modified rather than assumed as a principle according to which a school schedule may be arbitrarily arranged.

The execution of the Gary plan is again defective in respect to educational supervision. To be sure, teaching and discipline in harmony with the Gary idea are to be found; side by side, however, are also teaching and discipline of old-fashioned type. Of course, this is inevitable. No consistently modern scheme could be completely realized at this time, because the materials have not as yet been created, the teachers have not yet been trained. Criticism is warranted, not because crudities

and inconsistencies occur, but because the agencies which ought to be concerned over this situation have failed to take hold of it vigorously. Consequently in the so-called "old line" branches, the fundamental necessities of education, Gary execution falls short of usual performance. In reaching out for something new, Gary has too lightly parted with certain essential and established values, without being aware of the loss it has inadvertently made.

Not even in those branches to which Gary has given impetus and development—the so-called special activities—has a high or even satisfactory standard been reached. An excellent spirit pervaded the playgrounds, gymnasiums, shops, laboratories, and household arts departments. But high—even satisfactory—standards of workmanship did not rule. Some boys and girls did well; some did ill; concerted effort to procure generally good work, conscientious insistence upon excellent performance are only spasmodically in evidence. Not that teachers and principals do not want good work; they plainly do. But that patient and close attention to details by which alone good work can be obtained was far too irregular to be effective. Here, as elsewhere, one cannot avoid the conclusion that a large and generous scheme, distinguished by intelligence and vision in conception, falls too far short in the execution.

Attention has been called to the ways in which pupils participate in responsible activities—record keeping, etc. Such participation is admirably calculated to give a fla-

vor of reality to school life. What ought, however, to be a credit item is converted into a debit because the absence of proper accountability results in slipshod work that must do the pupils positive damage. Records characterized by poor spelling, arithmetical inaccuracies, and grave omissions pass unchallenged. Not only is the immediate educative effect lost, but the child tends to become habituated to inferior performance. Thus, once more sound conception is frustrated by ineffective execution.

Could the Gary scheme be acceptably executed without additional expenditure? If not, how much more would have to be spent? Or can results of higher quality be obtained on the present outlay only by attempting less? We are unable to say. These questions cannot be finally answered until the present administrative and supervisory officers either conceive their functions somewhat differently or exercise them more effectively. Unquestionably, the mere process of gearing up the present organization would substantially improve results; for which reason it would be unwise either to curtail opportunities or largely to increase expenditure until the existing system has shown what it can accomplish when on the alert.

An eminent surgeon, accounting for his success in treating a recalcitrant wound, recently remarked of the hospital with which he is associated: "Here we try things." He did not mean that he and his associates follow a hit-or-miss policy. He was, in point of fact,

describing an arduous, rigorous, exacting, and at the same time strictly accountable procedure. They canvass their resources, select in a critical way the moves which may reasonably be expected to prove beneficial, and with the most scrupulous care watch the outcome, determining the next procedure on the basis of ascertained results. They "try things," but they "try things" intelligently and critically.

It is a severe criticism of much of our current education that it does not "try things." This modern world of ours is in many ways a new world, with new peoples facing new problems and new opportunities. We tell ourselves again and again that only through education can safe and happy adjustments be reached; no one pretends that education has yet found these adjustments. Nevertheless, educational inertia is all but invincible. Only here and there in the person of this or that teacher or principal or supervisor does it "try things." And the moment it is proposed to "try things"—the only method by which progress can be made—the forces of conservatism organize to check and discredit progressive enterprise.

It is to the substantial and lasting credit of Gary that it has had the courage, liberality, and imagination to "try things." Nor have things been tried blindly and recklessly. The social situation to be dealt with has been thoughtfully analyzed; the resources at our disposal have been intelligently marshaled. That is, Gary did not act in ignorance of the situation to be met; it did not em-

ploy ill adjusted tools. It has failed only in caution and criticism. Hence, while things have been tried, results have not been carefully checked. Disappointment was inevitable, but it is disappointment that does not necessarily imply fundamental error.

It is not difficult to understand why self-criticism was overlooked. Education has for centuries too largely consisted of exercises habitually practised, partly for known and obvious, partly for unknown, ends. It made little practical difference whether the end was known or unknown, because in neither case were schoolmen accustomed to examine results carefully in order to ascertain what their efforts and processes achieved. In failing to scrutinize results, Gary simply did as others did. There is also another consideration. The Gary scheme was conceived in enthusiasm. The temperament of the reformer is not usually associated in the same individual with the temperament of the critic. The two must, however, be brought together. The innovator must formulate his purposes clearly and concretely; and his results must be measured in the light of his professed aims. If innovation is carried on in this critical spirit, conservatism will also have to submit to assay.

The theory of which Gary is an exemplification is derived from the facts and necessities of modern life. The defects of Gary cannot therefore simply throw us back on the meager type of education appropriate enough to other conditions. Gary's experience up to this time

means merely that further efforts, at Gary and elsewhere, more clearly defined, more effectively controlled, must be made in order, if possible, to accomplish Gary's avowed object—the making of our schools adequate to the needs and conditions of current life.

APPENDIX

A

Amount of Instruction Observed

Our judgments of the quality of the regular instruction at Gary are based on four months of intimate contact with the classroom work. Short visits to all departments gave us numerous samples of what was going on. But our chief reliance is the full notes on 228 recitations, the unit of observation being the entire lesson period, which varies from thirty to sixty minutes. These observations were distributed as the table on the following page indicates.

Our task had to do with the teaching of the basic studies only. But to get the larger view needed to interpret the regular work, our observations extended to other than the fundamental studies.

The intensiveness of our observations is revealed by the amount of time spent with each teacher. The total number of teachers, exclusive of physical training teachers

Observations in Different Subjects

Subjects	Total recitations observed	Grades											
		1st	2d	3d	4th	5th	6th	7th	8th	IX	X	XI	XII
Kindergarten	*9												
Reading	37	13	7	3	4	5	2	2	1				
Expression	15	4	2	5	2			1			1		
Language	22	4	1	3	1	3	2	3	1	2	1		1
Spelling	26	5	5	3	4	2	3	2	2				
Penmanship	5	1	1			1	1		1				
Arithmetic	28	6	3	6	3	2	2	4	2				
Geography	12				1	3	2	2	4				
History	11				2	1	1	4	1	1	1		
Nature Study	7	4	2	1									
Handwork	9	2	2	2	3								
Freehand Drawing	5		1		2		1			1			
Mechanical Drawing	3						2			1			
Physiology	3						1		1		1		
Zoology	1									1			
Botany	3								2		1		
Physics	6					1			3			2	
Chemistry	6						1			2		1	2
Literature	3										1	1	1
Latin	2									1	1		
German	3										2	1	
French	2										2		
Algebra	2									1	1		
Geometry	3										2	1	
Commercial	*4												
Domestic Science	1										1		
Total	228	39	24	23	22	18	18	18	18	10	15	6	4

*Hour periods instead of recitation periods as in all other cases.

and shopmen, is one hundred and twenty one. We observed the work of one hundred of these, as follows:

SCHOOLS	NUMBER OF TEACHERS OBSERVED	HOURS (60 MINUTES) OBSERVED	NUMBER OF TEACHERS OBSERVED GIVEN NUMBER OF HOURS			
			1	2	3	4
Emerson . .	23	57	3	7	12	1
Froebel . .	35	58	17	13	5	
Jefferson . .	14	22	7	6	1	
Beveridge . .	9	11	8		1	
Glen Park . .	7	13	1	6		
24th Avenue .	5	8	2	3		
Ambridge . .	3	3	3			
Clarke . . .	2	2	2			
West Gary .	2	2	2			
Total . .	100	176	45	35	19	1

In addition to spending one hour in the classroom with forty five per cent. of these teachers, two hours with thirty five per cent., and three hours with nineteen per cent., probably an equal amount of time was devoted to talking with the several teachers about their work.

B

School Records and Reports

From the beginning Gary has had a rather complete system of records, covering most of the essential items. It centers about the so-called register teacher, who is supposed to take the school census, to keep all records, and to make all reports for children coming to school from a particular section or division of the city, irre-

spective of whether she has any of them in her classes. Current as well as permanent records are stored in the rooms of the register teachers. The principal seldom has in his office more than a list of pupils in school and the register sheets of those who have dropped out. Such reports as the register teacher makes concern her district; they are almost never summarized by classes, by schools, or for the system as a whole.

Without published reports for the system and without summaries for the several schools, except on enrollment and attendance, we were thrown back for the needed educational data on the original records of the register teachers, and such reports as could be procured through regular class teachers. The task of collecting the needed data, most of them from pupil record sheets, was a prodigious one, often complicated by the incompleteness of the records and by differences which had to be reconciled. For example, different reports on class enrollment did not agree; the age and grade of pupils as given by the register teacher and by the class teacher were often at variance; similarly with reports on the length of time children had been in the Gary schools.

C

Methods of Computing Over Age and Differences in Results

There are a number of recognized methods of computing age-grade status, notably those developed and

employed by Ayres,[1] Strayer,[2] and Bachman.[3] Inasmuch as these methods yield different results, all three were employed in computing the age-grade status of the Gary children.

The age-grade status of the Gary children according to these methods is as follows:

METHOD	PER CENT. UNDER AGE	PER CENT. NORMAL AGE	PER CENT. OVER AGE
Ayres[1]	42	33	25
Strayer[1] . . .	8	67	25
Bachman[2] . . .	22	40	38

[1]The ages of the children were taken as of June 23, and the status determined before promotion.

[2]For details, see Table XXXVII, Appendix D, page 254A.

The fact that the reported age-grade status of children differs according to the method of computation employed would not be so important if there were at hand for each method an abundance of reliable comparable data. Unfortunately, such data are exceedingly meager.

For example, Ayres computed in 1911 the age-grade status of the children in twenty nine American cities.[4] When first published, these data were excellent for comparative purposes, but they are now largely antiquated. To illustrate, Ayres reported in 1911 48 per cent. of over

[1]The Identification of the Misfit Child. Russell Sage Foundation, 1911.

[2]Age and Grade Census of Schools and Colleges. Bulletin of the U. S. Bureau of Education, No. 5, 1911.

[3]Elementary School Administration. World Book Co., 1915.

[4]The Identification of the Misfit Child.

age at Montclair, N. J., whereas the official report for 1915–16 shows only 16 per cent. Similarly, in 1911 Ayres gave the over age at Racine, Wisconsin, as 28 per cent., whereas Racine reports for 1915–16 only 11 per cent. Moreover, the reports of cities where Ayres' method is now employed reveal so many variations in application, such as time of taking the ages of the children, time of determining the status of the children, and the like, that a diligent search failed to uncover comparative data that could be used with safety.

With the help of the Michigan study of 1915,[1] the situation with respect to comparable data for Strayer's method is better. It should, however, be kept in mind that these data are for a single state, also that the ages of the Michigan children are for their last birthday prior to December, whereas the ages of the Gary children are as of June 23d. The effect of this is to augment the amount of Gary over age—just how much we do not know. The age-grade status of the children in the Michigan cities that might be compared with Gary is as follows:

[1]Berry: A Study of Retardation, Acceleration, etc., in the Public Elementary Schools of Two Hundred Twenty-five Towns and Cities of Michigan. (1915.)

CITY	POPULATION U. S. CENSUS 1910	PER CENT. UNDER AGE		PER CENT. NORMAL AGE		PER CENT. OVER AGE	
		BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
Battle Creek	25,267	2.9	3.9	60.0	69.7	37.1	26.4
Bay City	45,166	4.9	6.3	56.4	62.3	38.7	31.4
Detroit	465,766	3.6	4.2	64.7	69.4	31.7	26.4
Grand Rapids	112,571	3.2	3.8	69.7	73.0	27.1	23.2
Kalamazoo	39,437	3.3	3.0	75.6	80.8	21.1	16.2
Lansing	31,229	3.7	4.7	68.5	71.3	27.8	24.0
Saginaw	50,510	6.2	14.5	70.0	69.1	23.8	16.4
Gary	50,000 (estimated for 1916)	8		67		25	

TABLE III

TEACHER'S DAILY PROGRAM, WEST GARY SCHOOL
SPRING TERM 1915-16

TIME	SUBJECT	GRADE
9:00— 9:05	*Opening Exercises*	
9:05— 9:25	Reading	4th
9:25— 9:45	Reading	5th
9:45—10:00	Reading	6th
10:00—10:10	Arithmetic	4th
10:10—10:30	Arithmetic	5th and 6th
10:30—10:45	Arithmetic	7th and 8th[1]
10:45—11:00	Spelling	4th and 5th
11:00—11:15	Spelling	6th, 7th, and 8th
11:15—12:00	Writing	All grades
12:00—12:45	*Lunch*	
12:45— 1:00	Music and Drawing[2]	All grades
1:00— 1:25	Grammar	4th and 5th
1:25— 1:35	Grammar	6th
1:35— 1:45	Grammar	7th and 8th
1:45— 2:00	Physiology	6th, 7th, and 8th (Mondays, Wednesdays, and Fridays)
2:00— 2:15	Geography	4th and 5th (Tuesdays and Thursdays)
2:15— 2:30	*Recess and Free Play*	
2:30— 2:45	Geography	6th
2:45— 3:00	Geography	7th and 8th
3:00— 3:15	History	4th and 5th
3:15— 3:30	History	6th
3:30— 3:45	History	7th and 8th

[1]At this period all other grades have recess and free play.
[2]Drawing includes some nature study and handwork.

TABLE IV

COMBINED STUDY PROGRAMS OF FROEBEL, EMERSON, AND JEFFERSON SCHOOLS
SPRING TERM 1915–16

	GRADES							
	I	II	III	IV	V	VI	VII	VIII
TOTAL NUMBER OF CLASSES IN GRADE:	12	9	12	9	10	7	8	5
Number of Classes Scheduled for:								
Reading	12	9	12	9	10	7	8	5
Language	12	9	12	9	10	7	8	5
Spelling	12	9	12	9	10	7	8	4
Penmanship	12	9	12	9	10	7	8	5
Arithmetic	12	9	12	9	10	7	8	5
Geography				3	7	7	7	5
History				3	7	7	7	5
Nature Study	7	5	4	1	1		1	
Physics								1
Chemistry								1
Physiology					1			1
Botany								1
Expression		3	4	5	3	2	1	
Application	5	3	4	4	1			
Handwork	7	1	6	2				
Freehand Drawing	8	6	5	3	2	4[1]		1
Mechanical Drawing						3[2]		

[1]One of these classes is scheduled for both freehand drawing and shop work, and two others for both freehand drawing and mechanical drawing.

[2]Two of these classes are scheduled for both freehand and mechanical drawing.

TABLE IV—*Continued*

	GRADES							
	I	II	III	IV	V	VI	VII	VIII
TOTAL NUMBER OF CLASSES IN GRADE:	12	9	12	9	10	7	8	5
Forge Foundry Painting Plumbing Poultry Printing Repair Work Sheet Metal Work Shoe Repairing Woodworking			2	1	6	3[a]	7	
Cooking			2	2	5	5	3	1
Sewing			1	4	5	2	3	3
Helpers			1	4	5			
Teachers' Assistants						1		2
Music	1	3	4	4	2	1	1	
Auditorium	12	9	12	9	10	7	8	5
Physical Training	12	9	12	9	10	7	8	5
German					2		2	3

[a] One of these classes is scheduled for both shop and freehand drawing.

TABLE V

SPECIAL WORK OF ALL JEFFERSON CLASSES DURING 1915–16 AND THE NUMBER OF HOURS FOR WHICH EACH ACTIVITY WAS SCHEDULED

CLASS NUMBER	GRADE IN:			NUMBER OF HOURS CLASSES WERE SCHEDULED FOR:							
	SEPTEMBER	DECEMBER	MARCH	MUSIC	EXPRESSION	HANDWORK OR DRAWING	COOKING	SEWING	SHOP (BOYS)	NATURE STUDY	APPLICATION
1	1C	1B	1B	50	50	100				100	100
2	1A	2C	1A	50	50	100				100	100
4	1C	1B	1A	50	50	100				100	100
5	1B	1A	2C	50	50	100				100	100
3	2C	2B	2A	50	50	50				100	100
7	2B	2A	3C	50	50	50				100	100
6	2A	3C	3B	50	50	50	50	50	100	50	100
8	3C	3B	3A	50	50	50	100		100	50	100
9	3B	3A	4C	50	50	50	50	50	100	50	100
12	3A	4C	4B	50	50	50	100		100	50	100
12	4C	4B	4A	50	50	50	100		100	50	100
11	4B	4A	5C	25	25	150	50	50	100	50	50
10	4A	5C	5B	50	50	50	50	50	100	50	100
10	5C	5B	5A	50	50	50	50	50	100	50	100
15	5B	5A	5A	25	25		50	50	100	50	
13	5A–6C	5A–6C	6C			50	100		100	50	
16	6B	6A	7C			50	100		100	50	
17	6A	6A	7C			50		100	100	50	
17	7A	7A	7A			50		100	100	50	
14	7C	7B	7A			50	100		100	50	
18	8C	8B	8A			50		100	100	50	

TABLE VI

Special Work of All Froebel Classes

During 1915-16 and the Number of Hours for Which Each Activity Was Scheduled

Class Number	Grade In:			Number of Hours Classes Were Scheduled for Various Subjects																
	September	December	March	Physics	Chemistry	Botany	Zoology	Sewing	Cooking	Shop	Mechanical Drawing	Freehand Drawing	Teachers' Assistants	Helpers	Handwork or Drawing	Music	Expression	Application	Nature Study
7	1C	1B	1B	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
8	1B	1A	1A	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
9	1B	2C	2C	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
10	1B	1C	1C	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	...
11	1A	1B	1B	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
12	2C	1A	1A	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
13	2C	2B	1A	...	...	...	...	...	...	...	...	...	...	...	200	...	...	100	100
14	2C	2B	2C	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
15	2C	2B	2B	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
16	2B	3C	3C	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
17	2B	3C	3B	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
18	2A	2A	2A	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
19	2A	3B	3A	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
20	3C	3C	3B	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
21	3C	3B	3A	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
22	3B	4C	4C	...	...	...	...	...	...	...	...	...	...	...	100	...	...	200	100
23	3A	3C	3C	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
24	3A	4C	4B	...	...	...	...	...	...	...	...	...	...	...	100	50	50	100	100
25		Mixed		...	...	...	...	...	...	...	...	...	...	...	200	50	50	100	100
26		"		...	...	...	...	200[a]	...	200[a]	...	...	...	200	...	...	...	...	...
27		"		...	...	...	...	...	200[a]	200[a]	...	...	...	200	...	...	...	...	...
28	4C	4B	4A	...	...	...	...	200[a]	...	200[a]	...	...	...	200	...	...	...	...	100

29	4B	4A	5C	...	...	...	...	...	...	...	...	...	...	300	...	...	...	100	...
30	4A	5C	5C	...	...	...	...	200[a]	...	200[a]	...	...	...	200	...	25	25	...	...
31	5C	5C	5C	...	...	...	...	...	...	...	...	...	...	400	...	50a	50a	...	...
32	For-eign	Mixed	4C	...	...	...	...	200[a]	...	200[a]	...	...	...	200	...	50	50	...	...
33	5C	5B	5A	...	...	...	...	...	200[a]	200[a]	...	...	...	200	...	...	...	...	...
34	Colored 1st &		2d	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	100
35		No class		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
36	Colored 3d &		4th	...	...	...	...	...	...	...	...	...	...	...	...	50	50	...	100
37	5B	5B	5B	...	...	100[4]	...	100[4]	100[4]	300[4]	...	...	100	...	...	...	...	...	...
38	5A	5A	6C	...	100[a]	...	100[a]	...	100[a]	100[a]	100[a]	100[a]	100	...	...	...	...	...	...
39	6C	6C	6B	...	...	100[4]	...	100[4]	100[4]	300[4]	...	...	100	...	...	...	...	...	...
40	5A	6C	6B	...	100[a]	...	100[a]	...	100[a]	100[a]	100[a]	100[a]	100	...	...	...	...	...	...
41	6C	6C	6B	100[7]	...	100[7]	...	100[4]	...	100[4]	100[a]	100[a]	100	...	...	200	...	...	...
42	6C	6B	6A	...	...	...	100[a]	...	100[a]	200[a]	100[a]	100[a]	100	...	...	...	...	...	...
43	7C	7B	7A	100[7]	...	100[7]	...	100[4]	...	100[4]	100[a]	100[a]	100	...	...	...	...	...	...
44	6A	7B	7A	...	...	...	100[a]	...	100[a]	200[a]	100[a]	100[a]	100b	...	...	200	...	...	...
45	8C	8B	8A	100[7]	...	100[7]	...	100[4]	...	100[4]	100[a]	100[a]	100	...	...	...	...	...	...
46	8C	8B	8A	...	...	...	100[a]	...	100[a]	200[a]	100[a]	100[a]	100	...	...	...	...	...	...

*a*Part of the class spends this time in play.

*b*Part of the class spends this time in regular work.

The same number above the scheduled hours of two subjects indicates that the members of the particular class had a choice between these branches.

TABLE VII[1]

NUMBER OUT OF FIFTY REPRESENTATIVE CITIES TEACHING GIVEN SUBJECTS IN PARTICULAR GRADES

SUBJECTS	GRADES							
	I	II	III	IV	V	VI	VII	VIII
Reading	50	50	50	50	50	50	50	50
Language	47	49	50	50	50	50	50	50
Spelling	35	49	50	50	50	50	47	47
Writing	47	49	49	49	49	48	44	43
Arithmetic	38	50	50	50	50	50	50	50
Geography	6	41	36	49	50	50	50	34
History	13	15	22	35	42	42	49	50
Science	37	37	39	44	45	43	39	44
Drawing	49	49	49	49	49	49	49	49
and								
Manual Training	19	19	23	26	32	37	44	44
Music	49	49	49	49	50	50	50	49
Auditorium:								
Opening Exercises	43	43	43	43	43	43	42	43

and Miscellaneous	18	22	21	24	23	23	26	22
Physical Training	43	43	43	42	43	43	44	43
and Recess	37	40	40	41	41	40	37	37

[1]This table was compiled from the report of Henry W. Holmes, Harvard University, on "Time Distribution by Subjects and Grades in Representative Cities," in the Fourteenth Yearbook of the National Society for the Study of Education. The study comprises the elementary programs of the following cities: Baltimore, Md.; Berkeley, Cal.; Boise, Idaho; Boston, Mass.; Boulder, Col.; Cheyenne, Wyo.; Cincinnati, Ohio; Detroit, Mich.; East Orange, N. J.; Fargo, N. D.; Frankfort, Ind.; Freeport, Ill.; Haverford, Pa.; Indianapolis, Ind.; Kansas City, Kan.; Lexington, Ky.; Lincoln, Neb.; Louisville, Ky.; Madison, Wis.; Manchester, N. H.; Milwaukee, Wis.; Minneapolis, Minn.; Montclair, N. J.; Montpelier, Vt.; Mt. Vernon, N. Y.; Nashville, Tenn.; Newark, N. J.; New Haven, Conn.; New Orleans, La.; Newton, Mass.; Omaha, Neb.; Passaic, N. J.; Philadelphia, Pa.; Phoenix, Ariz.; Providence, R. I.; Rochester, N. Y.; Sacramento, Cal.; Salt Lake City, Utah; San Francisco, Cal.; Seattle, Wash.; Sioux Falls, S. D.; Solvay, N. Y.; Southington, Conn.; St. Louis, Mo.; Spokane, Wash.; Tacoma, Wash.; Topeka, Kan.; Washington, D. C.; Westerly, R. I.; Wheeling, W. Va.

TABLE VIII[5]

AVERAGE NUMBER OF HOURS ALLOTTED TO DIFFERENT STUDIES AND ACTIVITIES IN FROEBEL, EMERSON, AND JEFFERSON, 1915–16

GRADE	READING	LANGUAGE[1]	SPELLING	WRITING	ARITHMETIC	GEOGRAPHY	HISTORY	SCIENCE	DRAWING AND MANUAL TRAINING[2]	MUSIC[3]	AUDITORIUM	PHYSICAL TRAINING AND PLAY	GERMAN[4]
1	241	82	83	57	99			89	108	33	200	408	
2	239	104	69	47	117			80	111	33	200	400	
3	205	132	79	39	120			90	111	30	200	394	
4	176	118	72	38	124	15	15	57	228	20	200	337	
5	132	103	60	49	106	45	44	14	283	14	200	340	10
6	143	67	51	28	126	56	65	83	288	29	200	264	
7	102	91	54	38	123	64	95	69	209	29	200	314	12
8	85	101	28	33	143	58	120	85	267		200	240	40
Total	1,323	798	496	329	958	238	339	567	1,605	188	1,600	2,697	62

[1]Language includes the grammar of the seventh and eighth grades.

[2]Unfortunately, we are unable to separate drawing from manual training or shop work. In the first two grades the allotted time is divided about equally. In the other grades approximately one third goes to drawing, including both freehand and mechanical, and two thirds to shop work.

[3]The time allotment to music relates to regular music teaching, and does not include such parts of "auditorium" time as may be given to it.

[4]German is taught in Emerson and Jefferson only.

[5]The first step in the construction of Table VIII was to tabulate the study programs of each class in the three schools under consideration for the entire school year 1915–16. This gave for each class the official program assignment to "regular work," "auditorium," and each special activity, including science. The average time allotted in each grade for the year 1915–16 to "regular work," "auditorium," and each special activity, including science, was then determined by dividing the sum of the separate program allotments to each of the studies to the several classes in each grade by the total number of classes in that grade.

The second step was to secure from each teacher, for the spring term 1915–16, a statement of the time she actually devoted in each class to the respective studies taught by her; that is, the part of the total program allotment to "regular work" actually devoted to reading, writing, etc., and the part of the total program allotment devoted by special teachers to their particular specialty, and the part of this allotment used by them for instruction in regular studies. On the basis of this information, a table was constructed showing, for the spring term 1915–16, for all special branches the relation between the actual allotment in each grade and the corresponding allotment in the official program, also the part of the allotment to special branches devoted to "regular work" by special teachers; and for all "regular work" the actual time devoted both by regular and special teachers to each subject in each grade, such as arithmetic, writing, etc.

The final step was to use the proportion for the spring term between the actual time distribution and the distribution of the school program, assuming that the proportion was the same for the fall and winter terms, to correct for the special branches the average annual allotments as given in the school program, and to use the total actual allotments reported by the teachers for the spring term to determine the actual annual average time devoted to each regular study—reading, writing, arithmetic, etc.

TABLE VIII[5]

AVERAGE NUMBER OF HOURS ALLOTTED TO DIFFERENT STUDIES AND ACTIVITIES IN FROEBEL, EMERSON, AND JEFFERSON, 1915–16

GRADE	READING	LANGUAGE[1]	SPELLING	WRITING	ARITHMETIC	GEOGRAPHY	HISTORY	SCIENCE	DRAWING AND MANUAL TRAINING[2]	MUSIC[3]	AUDITORIUM	PHYSICAL TRAINING AND PLAY	GERMAN[4]
1	241	82	83	57	99			89	108	33	200	408	
2	239	104	69	47	117			80	111	33	200	400	
3	205	132	79	39	120			90	111	30	200	394	
4	176	118	72	38	124	15	15	57	228	20	200	337	
5	132	103	60	49	106	45	44	14	283	14	200	340	10
6	143	67	51	28	126	56	65	83	288	29	200	264	
7	102	91	54	38	123	64	95	69	209	29	200	314	12
8	85	101	28	33	143	58	120	85	267		200	240	40
Total	1,323	798	496	329	958	238	339	567	1,605	188	1,600	2,697	62

[1]Language includes the grammar of the seventh and eighth grades.

[2]Unfortunately, we are unable to separate drawing from manual training or shop work. In the first two grades the allotted time is divided about equally. In the other grades approximately one third goes to drawing, including both freehand and mechanical, and two thirds to shop work.

[3]The time allotment to music relates to regular music teaching, and does not include such parts of "auditorium" time as may be given to it.

[4]German is taught in Emerson and Jefferson only.

[5]The first step in the construction of Table VIII was to tabulate the study programs of each class in the three schools under consideration for the entire school year 1915–16. This gave for each class the official program assignment to "regular work," "auditorium," and each special activity, including science. The average time allotted in each grade for the year 1915–16 to "regular work," "auditorium," and each special activity, including science, was then determined by dividing the sum of the separate program allotments to each of the studies to the several classes in each grade by the total number of classes in that grade.

The second step was to secure from each teacher, for the spring term 1915–16, a statement of the time she actually devoted in each class to the respective studies taught by her; that is, the part of the total program allotment to "regular work" actually devoted to reading, writing, etc., and the part of the total program allotment devoted by special teachers to their particular specialty, and the part of this allotment used by them for instruction in regular studies. On the basis of this information, a table was constructed showing, for the spring term 1915–16, for all special branches the relation between the actual allotment in each grade and the corresponding allotment in the official program, also the part of the allotment to special branches devoted to "regular work" by special teachers; and for all "regular work" the actual time devoted both by regular and special teachers to each subject in each grade, such as arithmetic, writing, etc.

The final step was to use the proportion for the spring term between the actual time distribution and the distribution of the school program, assuming that the proportion was the same for the fall and winter terms, to correct for the special branches the average annual allotments as given in the school program, and to use the total actual allotments reported by the teachers for the spring term to determine the actual annual average time devoted to each regular study—reading, writing, arithmetic, etc.

TABLE IX

RANKING OF STUDIES AND ACTIVITIES BASED ON AVERAGE TIME ALLOTMENT IN FROEBEL, EMERSON, AND JEFFERSON, 1915–16

	AVERAGE TOTAL HOURS ALLOTTED	PER CENT. OF TOTAL ELEMENTARY SCHOOL TIME
Rank of Different Subjects		
1 Physical Training and Play	2,697	24
2 Drawing and Manual Training	1,605	14
3 Auditorium	1,600	14
4 Reading	1,323	12
5 Arithmetic	958	9
6 Language	798	7
7 Science	567	5
8 Spelling	496	4
9 History	339	3
10 Writing	329	3
11 Geography	238	2
12 Music	188	2
13 German	62	1
Rank of Conventional Groups		
Special Subjects:		
German	62	1
Music	188	2
Auditorium	1,600	14
Drawing and Manual Training	1,605	14
Physical Training and Play	2,697	24
Total	6,152	55
The Fundamentals:		
The Three R's	3,904	35
Geography	238	2
History	339	3
Science	567	5
Total	5,048	45
The Three R's:		
Reading	1,323	12
Language	798	7
Spelling	496	4
Writing	329	3
Arithmetic	958	9
Total	3,904	35
TOTAL	11,200	100

TABLE X

LENGTH OF SCHOOL DAY IN CITIES HAVING POPULATION OF 100,000 OR MORE

HOURS IN SCHOOL DAY	NUMBER OF CITIES
4¼	1
4½	2
4¾	3
5	31
5¼	7
5½	3
5¾	2
6	1
	TOTAL 50

The length of the school day reported is that for the upper grades; the common tendency to shorten the school day in the primary grades by a quarter to a half hour is ignored.

TABLE XI

LENGTH OF SCHOOL DAY IN CITIES HAVING POPULATION BETWEEN 25,000 AND 50,000

HOURS IN SCHOOL DAY	NUMBER OF CITIES
4½	8
4¾	7
5	47
5¼	22
5½	22
5¾	5
6	8
6¼	1
	TOTAL 120

The length of the school day reported is that for the upper grades; the common tendency to shorten the school day by a quarter to a half hour in the primary grades is ignored.

TABLE XII[3]

COMPARISON OF ANNUAL TIME ALLOTMENTS OF GARY AND OF FIFTY REPRESENTATIVE CITIES

SUBJECTS	AVERAGE NUMBER OF HOURS ALLOTTED IN GARY	AVERAGE NUMBER OF HOURS ALLOTTED IN 50 CITIES	PER CENT. OF TOTAL ELEMENTARY TIME IN GARY	PER CENT. OF TOTAL ELEMENTARY TIME IN 50 CITIES
The Three R's:				
Reading	1,323	1,280	12	15
Language	798	864	7	10
Spelling	496	482	4	6
Writing	329	388	3	5
Arithmetic	958	1,008	9	12
Total	3,904	4,022	35	48
The Fundamentals:				
The Three R's	3,904	4,022	35	48
Geography	238	539	2	6
History	339	496	3	6
Science	567	331	5	4
Total	5,048	5,388	45	64

Special Subjects:				
German	62		1	
Music	188	367	2	4
Auditorium	1,600	899[1]	14	11
Drawing and Manual Training	1,605	887	14	10
Physical Training and Play	2,697	927[2]	24	11
Total	6,152	3,080	55	36
TOTAL	11,200	8,468	100	100

[1]Includes time given to opening exercises and miscellaneous subjects.

[2]Includes time given to physical training and recess.

[3]The data on the fifty representative cities were compiled from the report of Henry W. Holmes, Harvard University, on "Time Distribution of Subjects and Grades in Representative Cities" in the Fourteenth Yearbook of the National Society for the Study of Education. The average allotment reported for a given branch is the sum of the average allotments in each of the eight grades. The average allotment is the average grade assignment to the particular branch in those cities teaching it, and not the average for the fifty cities irrespective of whether or not they all teach it.

The total time in the elementary school for the fifty cities is taken to be the sum of the average allotments to the several studies and activities. The average school year in the fifty cities is 38.75 weeks. Taking the total elementary school time as 8,468 hours allows, therefore, for a 5½-hour school day, which is probably a little higher than the actual average in the respective cities.

TABLE XIII[1]

MINUTES PER WEEK ALLOTTED TO SAME STUDY IN THE 4TH AND 8TH GRADES IN FROEBEL, EMERSON, AND JEFFERSON SCHOOLS, SPRING TERM 1915-16

SCHOOL AND GRADE	MINUTES PER WEEK ALLOTTED TO												
	READING	LANGUAGE	SPELLING	WRITING	ARITHMETIC	GEOGRAPHY	HISTORY	SCIENCE	DRAWING AND MANUAL TRAINING	MUSIC	AUDITORIUM	PHYSICAL TRAINING AND PLAY	GERMAN
Fourth Grade Average	292	196	119	63	206	73	77	300	391	105	300	533	
Froebel													
4C	285	210	100	50	375				180		300	600	
4C	450	150	75	75	150				600		300	300	
4B	230	235	145	50	150				240	150	300	600	
4A	150	150	75	75	150			300	300		300	600	

Emerson													
4C	225	190	150	60	150				425		300	600	
4A	150	140	100	60	150	150	150		600		300	300	
Jefferson													
4C	430	230	125	50	275					90	300	600	
4B	355	230	150	75	225	35	40			90	300	600	
4A	355	230	150	75	225	35	40			90	300	600	
Eighth Grade Average	132	157	54	52	222	91	187	550	455		300	360	105
Froebel													
8A	90	210	75	60	225	40	200		600		300	300	
8A	105	120	45	30	300	50	250		600		300	300	
Emerson													
8B	160	160	20	60	180	200	100	500			300	300	120
8A	120	120		60	180	75	225	600			300	300	120
Jefferson													
8A	185	175	75	50	225	90	160		165		300	600	75

[1]This table was compiled from data collected from each teacher in Froebel, Emerson. and Jefferson on the actual distribution of their time among the several studies and activities. The tabulations for the other grades show similar variations.

TABLE XIV

GARY HIGH SCHOOL COURSES, 1915–16[1]

SUBJECTS	NUMBER OF YEARS' WORK OR UNITS OFFERED IN EACH	
	EMERSON	FROEBEL
English	4	3
Expression	0	1
Latin	3	2
German	2	3
French	2	0
Mathematics	4	3
History	3	1
Zoology	1	½
Botany	1	½
Physics	1	1 1/10
Chemistry	1	1 1/10
Freehand Drawing	½	½
Mechanical Drawing	½	½
Cooking	1	1
Sewing	1	1
Industrial Work	1	1
Commercial Work	2	1
Music	1	1
Physical Training	1	1
Total units	30	22 7/10

[1]These courses of study were constructed from a study of the programs of the two schools, from consultation with heads of departments, and have been checked by the high school principals.

TABLE XV

COMPARISON BETWEEN MINIMUM COURSE OF COMMISSIONED HIGH SCHOOLS AS PRESCRIBED BY THE STATE DEPARTMENT OF EDUCATION AND COURSES OF EMERSON AND FROEBEL

SUBJECTS	MINIMUM YEARS OF WORK OR UNITS TO BE OFFERED IN EACH	AMOUNT OF CORRESPONDING WORK	
		EMERSON	FROEBEL
English	4	4	4
Foreign languages	4	7	5
Latin		3	2
or			
German	4	2	3
French	0	2	0
Mathematics	4	4	3
History	3	3	1
Science	4	4	$2\frac{7}{10}$
Botany		1	$\frac{1}{4}$
or			
Zoology	1	1	$\frac{1}{4}$
Chemistry	1	1	$1\frac{1}{10}$
Physical or Commercial Geography	1	0	0
Physics	1	1	$1\frac{1}{10}$
Music	1	1	1
Drawing	1	1	1
Cooking		1	1
and			
Sewing	1	1	1
Industrial Work	1	1	1
Commercial Work	0	2	1
Physical Training	0	1	1
Total	23	30	$22\frac{7}{10}$

TABLE XVI

Preparation of Principals and Regular Teachers[1]

PREPARATION	PRINCIPALS	HIGH SCHOOL	ELEMENTARY SCHOOL TEACHERS	TOTAL
Less than Standard High School	.....	.....	2	2
Standard High School	.....	1	7	8
Part Normal School	.....	.....	4	4
Standard Normal School	.....	1	20	21
Part College	3	3	7	13
Non-Standard College	.....	2	2	4
Standard College	1	9	3	13
Graduate	.....	10	.....	10
TOTAL	4	26	45	75

[1]Exclusive of 2 regular elementary teachers not reporting.

TABLE XVII

PREPARATION OF KINDERGARTEN TEACHERS[1]

PREPARATION	NUMBERS	
Standard High School		7
2 years' additional special work	4	
3 " " " "	3	
Standard Normal School		2
No additional special work	2	
Part College		2
2 years' additional special work	1	
3 " " " "	1	
Standard College		1
No additional special work	1	
TOTAL		12

[1]Exclusive of 1 not reporting.

TABLE XVIII

PREPARATION OF SPECIAL TEACHERS[1]

PREPARATION	AUDITORIUM AND EXPRESSION	FREEHAND DRAWING	HANDWORK	HOUSEHOLD ARTS	MANUAL TRAINING	MECHANICAL DRAWING	MUSIC	NATURE STUDY	PHYSICAL TRAINING	TOTAL
Elementary School	.....	.....	.....	1	.....	.....	.....	.....	.....	1
12 years' additional special work	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Standard High School	4	.....	.....	1	.....	.....	1	.....	9	15
No additional special work	.....	.....	.....	1	.....	.....	.....	.....	.....	1
2 years' additional special work	4	.....	.....	.....	.....	.....	.....	.....	5	9
3 " " " "	.....	.....	.....	.....	.....	.....	1	.....	4	5
Part Normal School	.....	1	1	.....	.....	.....	2	.....	1	5
No additional special work	.....	.....	1	.....	.....	.....	.....	.....	.....	1
2 years' additional special work	.....	.....	.....	.....	.....	.....	.....	.....	1	1
3 " " " "	.....	.....	.....	.....	.....	.....	1	.....	.....	1
6 " " " "	.....	1	.....	.....	.....	.....	.....	.....	.....	1
8 " " " "	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Standard Normal School	2	.....	4	.....	1	.....	1	1	1	10
No additional special work	2	.....	4	.....	1	.....	.....	1	1	9
1 year's additional special work	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Part College	.....	1	1	1	2	1	.....	.....	1	7
No additional special work	.....	.....	.....	1	2	1	.....	.....	.....	4
2 years' additional special work	.....	.....	1	.....	.....	.....	.....	.....	1	2
6 " " " "	.....	1	.....	.....	.....	.....	.....	.....	.....	1
Standard College	1	.....	1	3	.....	1	1	2	2	11
No additional special work	1	.....	.....	3	.....	1	.....	2	.....	7
1 year's additional special work	.....	.....	.....	.....	.....	.....	1	.....	2	3
2 " " " "	.....	.....	1	.....	.....	.....	.....	.....	.....	1
TOTAL	7	2	7	6	3	2	5	3	14	49

[1]Exclusive of 1 physical training teacher not reporting.

TABLE XIX

PREPARATION OF SHOPMEN

PREPARATION	NUMBER
Elementary School	4
25 years' trade experience	1
17 " " "	1
14 " " "	1
4 " " "	1
Part High School	4
17 years' trade experience	1
12 " " "	2
5 " " "	1
Standard High School	3
25 years' trade experience	1
16 " " "	1
10 " " "	1
TOTAL	11

TABLE XX[1]

PRIOR EXPERIENCE OF GARY PRINCIPALS AND TEACHERS

YEARS OF PRIOR EXPERIENCE	PRINCIPALS	TOTAL	KIND OF TEACHER											
			REGULAR HIGH SCHOOL	REGULAR ELEMENTARY SCHOOL	KINDERGARTEN	AUDITORIUM AND EXPRESSION	FREEHAND DRAWING	HANDWORK	HOUSEHOLD ARTS	MANUAL TRAINING	MECHANICAL DRAWING	MUSIC	NATURE STUDY	PHYSICAL TRAINING
No prior experience	...	23	2	5	6	1	.....	...	3	.....	.....	1	2	3
Less than 1 year	...	4	...	1	.....	.....	.....	...	.....	.....	.....	...	.....	3
1	...	9	2	.....	1	1	.....	1	1	1	.....	1	.....	1
2	...	8	3	.....	.....	1	.....	...	.....	1	.....	...	.....	3
3	...	20	2	11	1	.....	.....	1	.....	1	.....	1	.....	3
4	...	6	...	2	1	2	.....	1	.....	.....	.....	...	.....	.....
5	...	7	1	3	2	.....	.....	...	1	.....	.....	...	.....	.....
6	1	6	2	1	1	.....	.....	...	.....	.....	1	1	.....	.....
7	1	6	1	3	.....	.....	1	1	.....	.....	.....	...	.....	.....
8	...	13	3	5	.....	1	1	1	.....	.....	1	...	.....	1
9	...	4	2	1	.....	.....	.....	...	.....	.....	.....	...	1	.....
10 and more	2	26	8	13	.....	1	.....	2	1	.....	.....	1	.....	.....
TOTAL	4	132	26	45	12	7	2	7	6	3	2	5	3	14

[1]This table is exclusive of 11 shop teachers, all journeymen, 2 regular elementary teachers, 1 kindergarten and 1 physical training teacher.

TABLE XXI

NUMBER OF YEARS' EXPERIENCE OF PRINCIPALS AND TEACHERS AT GARY

NUMBER OF YEARS' EXPERIENCE IN GARY	KIND OF TEACHER													
	PRINCIPALS	TOTAL	REGULAR HIGH SCHOOL	REGULAR ELEMENTARY SCHOOL	KINDERGARTEN	AUDITORIUM AND EXPRESSION	FREEHAND DRAWING	HANDWORK	HOUSEHOLD ARTS	MANUAL TRAINING	MECHANICAL DRAWING	MUSIC	NATURE STUDY	PHYSICAL TRAINING
Less than 1	...	11	4	4	....	1	.....	...	1	.....	.....	...	1	....
1	...	8	2	1	2	1	.....	...	1	.....	.....	...	.....	1
2	...	33	4	10	4	2	.....	3	1	2	1	2	1	3
3	...	23	3	8	4	.....	.....	2	1	.....	.....	...	.....	5
4	...	12	6	2	....	.....	.....	...	1	1	1	...	.....	1
5	...	17	2	8	....	1	.....	1	.....	.....	.....	1	1	3
6	2	14	3	5	....	2	1	...	1	.....	.....	1	.....	1
7	...	6	2	1	2	.....	.....	1	.....	.....	.....	...	.....	....
8	1	6	....	5	....	.....	1	...	.....	.....	.....	...	.....	....
9	1	1	....	1	....	.....	.....	...	.....	.....	.....	...	.....	....
10	...	1	....	.....	....	.....	.....	...	.....	.....	.....	1	.....	....
TOTAL.....	4	132	26	45	12	7	2	7	6	3	2	5	3	14

TABLE XXII

Causes of Leaving Gary

Total in Service		Leaving		Causes							
Year	Number	Number	Per cent. of total	Taking positions elsewhere	Married	Personal illness	Family illness	Remaining at home	Re-entered school	Entered business	Dropped
1912–13	101	23	23	8	6	1	—	1	3	—	4
1913–14	126	20	16	1	8	1	1	2	1	—	6
1914–15	150	21	14	7	6	—	1	1	—	—	6
1915–16	147	32	22	10	8	3	—	1	3	3	4
Total	524	96	18	26	28	5	2	5	7	3	20
Per cent. of Total Leaving for Each Cause				27	30	5	2	5	7	3	21

TABLE XXIII

Annual Salary Rates of Principals and Teachers

Kind of Teacher	Rate of Salary																	
	$600	$650	$700	$750	$800	$850	$900	$950	$1,000	$1,050	$1,100	$1,150	$1,200	$1,300	$1,400	$1,450	$2,000	Total
Principal											1			1			2	4
Kindergarten	2[1]	1	3	1	1	3	1	1										13
Regular Elementary	6		5	4	9	6	12	1	4									47
Special	7		2	8	3	3	7	3	10	1	4		2					50
Auditorium and Expression	1				1	2			2	1								7
Freehand Drawing									1		1							2
Handwork			1	2	1		2	1										7
Household Arts	3			1					1		1							6
Manual Training									2		1							3
Mechanical Drawing									1				1					2
Music				2				1			1		1					5
Nature Study			1	1			1											3
Physical Training	3			2	1	1	4	1	3									15
Regular High					1	1	3	3	4	1	3		5	2		2	1	26
Shopmen		1			1		1		4	1	2		1					11
Total	15	2	10	13	15	13	24	8	22	3	10		8	3		2	3	151

[1]Includes one part-time teacher.

TABLE XXIV

Possible Earnings of Teachers on Different Annual Rates

Length of Service	Total Days	Possible Earnings				
Regular School Only	195	$600	$ 900	$1,200	$1,500	(Weak)
Regular School and 20 Saturdays	215	660	990	1,320	1,650	
Regular School and 60 Evenings	225	750[1]	1,050	1,350	1,650	(Average)
Regular School and 47 Summer	242	720	1,080	1,440	1,800	
Regular School and 60 Evenings and 20 Saturdays	245	810	1,140	1,470	1,800	
Regular School and 47 Summer and 20 Saturdays	262	780	1,170	1,560	1,950	(Strong)
Regular School and 47 Summer and 60 Evenings	272	870	1,230	1,590	1,950	
Regular School and 47 Summer, 60 Evenings, and 20 Saturdays	292	930	1,320	1,710	2,100	

[1] Probably an error.

TABLE XXV

Teachers Working Outside of the Regular Day School

Kind of Teacher	No Additional Work	Saturday School	Night School	Summer School	Saturday and Night School	Saturday and Summer School	Night and Summer School	Saturday, Night, and Summer School	Saturday, Night, Summer and Sunday School	Total
Principals	....	....	....	....	....	3	....	1	.....	4
Regular High School	4	5	2	2	4	2	1	4	2	26
Regular Elementary School	13	9	9	2	5	5	2	2	.....	47
Kindergarten	5	7	....	1	....	....	....	.....	.....	13
Auditorium and Expression	3	....	1	....	2	....	....	1	.....	7
Freehand Drawing	....	....	1	....	1	....	....	.....	.....	2
Handwork	....	....	2	....	3	2	....	.....	.....	7
Household Arts	1	2	1	....	....	....	1	1	.....	6
Manual Training	....	....	....	....	2	....	....	1	.....	3
Mechanical Drawing	....	....	....	....	1	....	....	1	.....	2
Music	....	1	1	....	1	....	....	2	.....	5
Nature Study	1	....	....	....	....	1	....	1	.....	3
Physical Training	....	2	1	....	8	....	....	3	1	15
Shopmen	....	1	....	....	3	....	....	7	.....	11
Total	27	27	18	5	30	13	4	24	3	151

TABLE XXVI

DAYS WORKED IN ADDITION TO 200 OF REGULAR DAY SCHOOL YEAR

KIND OF TEACHER	NUMBER OF TEACHERS DOING GIVEN NUMBER OF DAYS' EXTRA WORK										
	0	1–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	OVER 80	TOTAL
Regular High School	3	4	1	.....	3	.....	1	2	.....	2	16
Regular Elementary School	7	9	3	3	1	3	.....	.....	.....	.....	26
Kindergarten	5	4	.....	1	.....	.....	.....	.....	.....	.....	10
Auditorium and Expression	2	.....	2	1	.....	.....	.....	.....	.....	.....	5
Freehand Drawing	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2
Handwork	.....	.....	1	1	.....	1	.....	.....	.....	.....	3
Household Arts	.....	2	.....	.....	.....	.....	.....	.....	1	.....	3
Manual Training	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	2
Mechanical Drawing	.....	.....	.....	.....	.....	.....	.....	1	.....	1	2
Music	.....	2	.....	.....	.....	.....	1	.....	1	.....	4
Nature Study	.....	.....	.....	1	.....	.....	1	.....	.....	.....	2
Physical Training	.....	2	2	1	1	.....	.....	1	.....	1	8
TOTAL	17	23	11	8	5	4	5	4	2	4	83

TABLE XXVII

AVERAGE INCREASE IN REGULAR WAGE FROM EXTRA SERVICE

KIND OF TEACHER	NUMBER	AVERAGE OF REGULAR SALARIES	AVERAGE OF TOTAL SALARIES	INCREASE OF TOTAL OVER REGULAR SALARIES
Regular High School	13	$1,201	$1,465	$264
Regular Elementary School	19	859	933	74
Kindergarten	5	800	843	43
Auditorium and Expression	3	950	1,027	77
Freehand Drawing	2	1,050	1,102	52
Handwork	3	855	991	136
Household Arts	3	900	1,011	111
Manual Training	2	1,050	1,376	326
Mechanical Drawing	2	1,100	1,538	438
Music	4	997	1,179	182
Nature Study	2	825	1,004	179
Physical Training	8	859	998	139
TOTAL	66	$ 954	$1,103	$149

TABLE XXVIII

SCHOOL CENSUS[1] 1916 AND SCHOOL ENROLLMENT[2]

	AGES													TOTAL
	6	7	8	9	10	11	12	13	14	15	16	17	18	
Number Enumerated	819	746	710	603	611	497	468	421	441	354	394	356	382	6,802
Number Reported in Public Schools	576	572	559	456	460	379	347	309	298	155	106	53	42	4,312
Per cent. Reported in Public Schools	70	77	79	76	75	76	74	73	67	44	27	15	11	63
Number Reported in Private and Parochial Schools	86	130	126	136	133	99	105	91	56	29	11	8	6	1,016
Per cent. Reported in Private and Parochial Schools	11	17	18	22	22	20	23	22	13	8	3	2	2	15
Number Not Reported in School	157	44	25	11	18	19	16	21	87	170	277	295	334	1,474
Per cent. Not Reported in School	19	6	3	2	3	4	3	5	20	48	70	83	87	22

[1]The Gary school census is taken by the teachers, the schools being dismissed from two to four half days for this purpose. It is probably as complete and correct as the ordinary enumeration. The returns were tabulated by us.

[2]The enrollment of the several types of school in this table is based on the census returns, that is, where the children said they were or where they were reported to be by their parents, and not on the official school enrollment, whether public, private, or parochial.

TABLE XXIX

Census Returns of Children 14 to 18 Years of Age

	AGES					TOTAL
	14	15	16	17	18	
Number Enumerated	441	354	394	356	382	1,927
Number Reported in Public, Private, and Parochial Schools	354	184	117	61	48	764
Per Cent. Reported in Public, Private, and Parochial Schools	80	52	30	17	13	40
Number Reported at Work	48	121	221	237	270	897
Per cent. Reported at Work	11	34	56	67	70	47
Number Reported at Home	20	28	33	33	30	144
Per cent. Reported at Home	5	8	8	9	8	7
Number Unspecified	19	21	23	25	34	122
Per cent. Unspecified	4	6	6	7	9	6

TABLE XXX

WORK OF BOYS AND GIRLS BETWEEN 14 AND 18 YEARS OF AGE

OCCUPATION GROUP	BOYS BY AGES						GIRLS BY AGES					
	14	15	16	17	18	TOTAL	14	15	16	17	18	TOTAL
Agriculture	..	1	1	1	1	4	..	..	..	..	..	.....
Manufacture:												
Skilled Workers	..	..	6	16	19	41	..	..	1	3	1	5
Semiskilled Workers	14	30	67	73	83	267	3	7	16	6	3	35
Apprentices	1	1	2	1	2	7	..	..	..	..	..	.....
Laborers	3	2	6	9	13	33	..	..	..	..	..	.....
Transportation	..	3	4	7	15	29	..	..	4	3	1	8
Trade	2	11	12	16	10	51	1	10	17	14	13	55
Public Service	..	..	...	...	2	2	..	1	..	..	..	1
Professional and Semiprofessional Service	..	1	1	...	2	4	..	..	1	3	1	5
Domestic and Personal Service	..	5	9	6	9	29	13	26	30	36	33	138
Clerical Service	5	11	27	23	34	100	4	6	11	15	25	61
Occupation Not Specified	1	1	3	5	3	13	1	5	3	..	..	9
TOTAL	26	66	138	157	193	580	22	55	83	80	77	317

TABLE XXXI

WITHDRAWALS BY GRADES AND CAUSES FOR SCHOOL YEAR 1915–16

GRADES	TOTAL ENROLLMENT[1]	TOTAL NUMBER OF WITHDRAWALS[2]	PER CENT. OF GRADE WITHDRAWING	CAUSES OF WITHDRAWALS					
				MOVED	TO WORK	TO PRIVATE, PAROCHIAL, AND INSTITUTIONAL SCHOOLS	PERSONAL OR FAMILY ILLNESS	OTHER CAUSES	UNKNOWN
1	995	107	11	48	.....	24	10	2	23
2	557	48	9	25	.....	9	1	2	11
3	635	78	12	41	2	15	2	.....	18
4	466	40	9	21	3	8	1	.....	7
5	483	64	13	25	8	10	.....	3	18
6	356	62	17	13	20	10	1	.....	18
7	356	54	15	17	20	4	2	1	10
8	184	40	22	5	19	7	2	4	3
Mixed	75	5	7	1	3	.....	.....	1	.....
Unknown elem.	58	55	95	26	1	8	3	1	16
9	280	64	23	4	33	2	3	4	18
10	120	19	16	6	3	1	2	.....	7
11	81	10	12	1	5	.....	3	.....	1
12	49	2	4	1	1	.....	.....	.....	.....
H. S. Specials	25	16	64	2	4	.....	1	.....	9
TOTAL	4,720	664	14	236	122	98	31	18	159
Per cent. of withdrawals by causes				35	18	15	5	3	24

[1]Total enrollment includes all children enrolled during the school year, except 848 in kindergarten. This is our tabulation and differs by 86 from the reported total enrollment in the footnote page 49. The grades for the withdrawals are those in which they were on leaving, and the grades for the others are those before promotion at the end of the year.

It may be well to comment on certain striking peculiarities in the reported registration of some of the grades. For example, the unusual difference between the enrollment of grades seven and eight, 356 in the former and 184 in the latter, might be due to an extraordinary number of withdrawals from the eighth grade. Again, it is perplexing, to say the least, to note an enrollment of 184 pupils in the eighth grade and 280 in the ninth. It is probable that these irregularities are partly due to the rapid and yet irregular growth of the system, partly to the fact that triannual promotions are made in the elementary school, semiannual promotions in the high school.

[2]Children absent an entire month and who do not return are marked withdrawn and reported as such at the end of the year.

TABLE XXXII

WITHDRAWALS[1] BY AGES AND CAUSES FOR SCHOOL YEAR 1915-16

AGE OF PUPILS	TOTAL ENROLLMENT	TOTAL NUMBER OF WITHDRAWALS	PER CENT. WITHDRAWING AT EACH AGE	CAUSES OF WITHDRAWALS					
				MOVED	TO WORK	TO PRIVATE, PAROCHIAL, AND INSTITUTIONAL SCHOOLS	PERSONAL OR FAMILY ILLNESS	OTHER CAUSES	UNKNOWN
4 and 5	30	6	20	2	.....	.....	1	.....	3
6	443	35	8	9	.....	9	4	2	11
7	586	60	10	32	.....	11	4	.....	13
8	596	48	8	27	.....	10	2	1	8
9	517	42	8	20	.....	6	4	1	11
10	470	47	10	24	.....	14	1	.....	8
11	409	32	8	21	.....	6	1	.....	4
12	378	37	10	15	2	9	.....	2	9
13	349	54	15	17	14	8	1	.....	14
14	312	69	22	10	34	6	4	1	14
15	206	65	32	7	30	5	4	6	13
16	137	39	28	6	18	2	.....	2	11
17	81	18	22	3	12	.....	1	1	1
18	65	11	17	.....	5	.....	.....	.....	6
19	23	5	22	.....	.....	.....	1	.....	4
20	8	3	38	.....	1	.....	2	.....	.....
21	4	2	50	.....	1	.....	.....	.....	1
Unknown	106	91	86	43	5	12	1	2	28
TOTAL ..	4,720	664	14	236	122	98	31	18	159

[1]Children absent an entire month and who do not return are marked withdrawn and reported as such at the end of the year.

TABLE XXXIII

TOTAL ENROLLMENT AND AVERAGE DAILY ATTENDANCE

YEAR	TOTAL ENROLLMENT[1]	AVERAGE DAILY ATTENDANCE[2]	PER CENT. OF ENROLLMENT IN AVERAGE DAILY ATTENDANCE
1906–7	143	85	59
1907–8	492	273	55
1908–9	1,141	714	63
1909–10	1,502	957	64
1910–11	2,542	1,936	76
1911–12	3,293	2,222	67
1912–13	4,188	3,115	74
1913–14	5,061	3,563	70
1914–15	5,352	4,087	76
1915–16	5,654	4,132	73

[1]Total enrollment includes all the different children in the system during the course of the school year as officially reported.

[2]Average daily attendance equals the total days of attendance divided by the number of days the schools were in session.

TABLE XXXIV

PER CENT. OF ATTENDANCE FOR ALL GARY SCHOOLS

YEAR	TOTAL ENROLLMENT[1]	TOTAL DAYS ATTENDANCE	TOTAL DAYS ABSENCE[2]	PER CENT. OF ATTENDANCE
1911–12	3,293	415,279	63,133	87
1912–13	4,188	525,519	86,646	86
1913–14	5,061	720,206	80,364	90
1914–15	5,352	734,161	77,549	90
1915–16	5,654	827,688	97,809	89

[1]Includes kindergarten, elementary school, and high school.

[2]In case of continued absence, the child is marked absent until the end of the month, when he is recorded as withdrawn. This is in contrast to the practice of dropping children from the active roll after three days of continuous absence.

TABLE XXXVI

ELEMENTARY ENROLLMENT[1] IN 2D TO 8TH GRADES FOR SCHOOL YEAR 1915–16 BY DAYS

DAYS ENROLLED	NUMBER OF PUPILS ENROLLED	PER CENT. OF TOTAL ENROLLMENT	CUMULATIVE PER CENT. ENROLLMENT
200	2,214	82.5	82.5
190 up to 200	30	1.1	83.6
180 up to 190	45	1.7	85.3
170 up to 180	19	0.7	86
160 up to 170	23	0.9	86.9
150 up to 160	22	0.8	87.7
140 up to 150	31	1.2	88.9
130 up to 140	17	0.6	89.5
120 up to 130	36	1.3	90.8
110 up to 120	15	0.6	91.4
100 up to 110	32	1.2	92.6
90 up to 100	9	0.3	92.9
80 up to 90	25	0.9	93.8
70 up to 80	15	0.6	94.4
60 up to 70	49	1.8	96.2
50 up to 60	14	0.5	96.7
40 up to 50	33	1.2	97.9
30 up to 40	22	0.8	98.7
20 up to 30	24	0.9	99.6
10 up to 20	7	0.3	99.9
1 up to 10	2	0.1	100
TOTAL. . . .	2,684	100	100

[1]Enrollment includes all pupils on register in grades 2 to 8 at the end of the year, except 40 of unknown length of enrollment. The first grade was excluded because in some cases, where pupils were promoted from the kindergarten, the record of enrollment included the days both for the kindergarten and the higher grade, but quite as frequently account was taken only of the days in the first grade. Eight hundred and eighty-eight first grade pupils were thus eliminated; the cards showed, however, that 573 were enrolled the entire year of 200 days. Withdrawals were excluded because there was no way of telling, in most cases, whether they entered early or late.

TABLE XXXVII-*A*

NUMBER OF ELEMENTARY CHILDREN UNDER AGE, NORMAL AGE, AND OVER AGE

GRADE	NUMBER IN EACH GRADE			TOTAL IN EACH GRADE	PER CENT. IN EACH GRADE		
	UNDER AGE	NORMAL AGE	OVER AGE		UNDER AGE	NORMAL AGE	OVER AGE
1	37	309	197	543	7	57	36
2	130	288	209	627	21	46	33
3	112	221	194	527	21	42	37
4	110	161	208	479	23	34	43
5	83	126	190	399	21	31	48
6	80	88	148	316	25	28	47
7	80	75	99	254	31	30	39
8	63	66	44	173	36	38	26
Graduates	40	33	22	95	42	35	23
TOTAL	735	1,367	1,311	3,413	22	40	38

TABLE XXXVIII

AGE-GRADE STATUS OF ELEMENTARY CHILDREN IN DIFFERENT SCHOOLS

SCHOOL	NUMBER			TOTAL IN EACH SCHOOL	PER CENT.		
	UNDER AGE	NORMAL AGE	OVER AGE		UNDER AGE	NORMAL AGE	OVER AGE
Jefferson.....	251	295	163	709	35	42	23
Emerson.....	114	203	132	449	25	45	30
Beveridge.....	116	214	167	497	23	43	34
Froebel.....	124	399	662	1,185	10	34	56
Outlying Schools.	130	256	187	573	23	45	32
TOTAL.....	735	1,367	1,311	3,413	22	40	38

TABLE XXXIX

LENGTH OF TIME ELEMENTARY CHILDREN ARE OVER AGE

GRADE	LESS THAN 1 YEAR	1 YEAR AND LESS THAN 2	2 YEARS AND LESS THAN 3	3 YEARS AND LESS THAN 4	4 YEARS AND MORE	TOTAL OVER AGE
1	124	51	13	5	4	197
2	151	44	8	5	1	209
3	123	42	23	2	4	194
4	121	63	16	4	4	208
5	86	59	30	10	5	190
6	77	48	17	5	1	148
7	59	30	10	.....	.....	99
8	34	9	1	.....	.....	44
Graduates	14	7	1	.....	.....	22
TOTAL	789	353	119	31	19	1,311
Per cent.	60.2	26.9	9.1	2.4	1.4	100

TABLE XL

Entering Grades of Elementary School Pupils

Grade	Total Enrollment[1] in June After Promotion	Number Who Entered 1C or Beginning Grade	Number Who Entered Grades Above 1C	Numbers Who Entered Each Grade Above 1C								
				Entered 1st grade A and B division	Entered 2d grade	Entered 3d grade	Entered 4th grade	Entered 5th grade	Entered 6th grade	Entered 7th grade	Entered 8th grade	Grade entered not specified
1	547	497	50	50	....	....	....	....	....	....	....	....
2	629	494	135	62	68	....	....	....	....	....	....	5
3	528	378	150	30	73	45	....	....	....	....	....	2
4	480	273	207	31	48	81	43	....	....	....	....	4
5	400	194	206	23	40	47	62	32	....	....	....	2
6	316	113	203	28	35	41	36	42	20	....	....	1
7	254	58	196	27	34	33	28	28	31	14	....	1
8	173	28	145	19	22	19	22	21	19	19	4	....
Graduates	95	15	80	9	12	15	12	12	6	7	6	1
Total.	3,422	2,050	1,372	279	332	281	203	135	76	40	10	16
Per cent..	.....	60	40	20	24	20	15	10	6	3	1	1

[1]Total enrollment at end of year after promotion is exclusive of kindergarten, colored, and deficient pupils, and 27 pupils whose present grades were unrecorded.

TABLE XLI

AGE-GRADE STATUS OF ELEMENTARY CHILDREN FROM OTHER SYSTEMS ON ENTERING GARY SCHOOLS AND AGE-GRADE STATUS NOW

GRADE	PER CENT. UNDER AGE		PER CENT. NORMAL AGE		PER CENT. OVER AGE	
	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME
1	17	8	23	20	60	72
2	23	14	41	37	36	49
3	26	22	35	28	39	50
4	21	17	30	26	49	57
5	22	13	35	37	43	50
6	19	17	37	28	44	55
7	29	25	35	32	36	43
8	32	32	42	41	26	27
Graduates	34	36	41	38	25	26
TOTAL	24	20	36	32	40	48

TABLE XLII

AGE-GRADE STATUS OF ELEMENTARY CHILDREN NOT FROM OTHER SYSTEMS ON ENTERING GARY SCHOOLS AND AGE-GRADE STATUS NOW

GRADE	PER CENT. UNDER AGE		PER CENT. NORMAL AGE		PER CENT. OVER AGE	
	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME
1	27	7	56	60	17	33
2	31	23	58	48	11	29
3	35	21	53	48	12	31
4	30	27	55	40	15	33
5	25	29	54	26	21	45
6	30	40	55	28	15	32
7	31	55	55	21	14	24
8	46	57	47	25	7	18
Graduates	40	73	53	20	7	7
TOTAL	30	22	56	46	14	32

TABLE XLIII

AGE-GRADE STATUS OF ALL ELEMENTARY PUPILS ON ENTERING GARY SCHOOLS AND AGE-GRADE STATUS NOW

GRADE	PER CENT. UNDER AGE		PER CENT. NORMAL AGE		PER CENT. OVER AGE	
	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME
1	26	7	53	57	21	36
2	29	21	55	46	16	33
3	32	21	48	42	20	37
4	26	23	45	34	29	43
5	23	21	45	31	32	48
6	23	25	43	28	34	47
7	29	31	40	30	31	39
8	34	36	43	38	23	26
Graduates	35	42	43	35	22	23
TOTAL	28	22	48	40	24	38

TABLE XLII

AGE-GRADE STATUS OF ELEMENTARY CHILDREN NOT FROM OTHER SYSTEMS ON ENTERING GARY SCHOOLS AND AGE-GRADE STATUS NOW

GRADE	PER CENT. UNDER AGE		PER CENT. NORMAL AGE		PER CENT. OVER AGE	
	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME
1	27	7	56	60	17	33
2	31	23	58	48	11	29
3	35	21	53	48	12	31
4	30	27	55	40	15	33
5	25	29	54	26	21	45
6	30	40	55	28	15	32
7	31	55	55	21	14	24
8	46	57	47	25	7	18
Graduates	40	73	53	20	7	7
TOTAL	30	22	56	46	14	32

TABLE XLIII

AGE-GRADE STATUS OF ALL ELEMENTARY PUPILS ON ENTERING GARY SCHOOLS AND AGE-GRADE STATUS NOW

GRADE	PER CENT. UNDER AGE		PER CENT. NORMAL AGE		PER CENT. OVER AGE	
	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME	AT ENTRANCE	AT PRESENT TIME
1	26	7	53	57	21	36
2	29	21	55	46	16	33
3	32	21	48	42	20	37
4	26	23	45	34	29	43
5	23	21	45	31	32	48
6	23	25	43	28	34	47
7	29	31	40	30	31	39
8	34	36	43	38	23	26
Graduates	35	42	43	35	22	23
TOTAL	28	22	48	40	24	38

TABLE XLIV

AGE-GRADE AND PROGRESS OF ALL ELEMENTARY PUPILS[1]

AGE FOR GRADE	PROGRESS		
	PER CENT. RAPID	PER CENT. NORMAL	PER CENT. SLOW
Now Under Age.	51	34	15
Now Normal Age.	12	36	52
Now Over Age.	9	18	73
TOTAL PER CENT.	19	29	52

[1]For basis of this table see note to Table XXXVII and to XLV.

TABLE XLV

TOTAL TERMS ENROLLED AND TOTAL TERMS' CREDIT, BY GROUPS[1]

	TOTAL TERMS ENROLLED	TOTAL TERMS' CREDIT	NET TERMS LOST	PER CENT. OF NET LOSS
Children from Other Systems.	9,554	8,746	808	8
Children Attending No Other Schools. .	16,033	13,853	2,180	14
TOTAL.	25,587	22,599	2,988	12

[1]This table includes only 3,281 elementary children. It excludes 70 defective and 93 colored children, 117 enrolled less than a half term, and 51 whose progress or grade was unknown.

TABLE XLVI

TOTAL TERMS ENROLLED AND TOTAL TERMS' CREDIT, ALL CHILDREN, BY GRADES

GRADE	TOTAL TERMS ENROLLED	TOTAL TERMS' CREDIT	NET TERMS		PER CENT. OF	
			GAINED	LOST	GAIN	LOSS
1	1,273	522	.....	751	....	59
2	2,603	1,950	.....	653	....	25
3	3,608	2,971	.....	637	....	18
4	3,854	3,497	.....	357	....	9
5	4,025	3,566	.....	459	....	11
6	3,537	3,349	.....	188	....	5
7	3,089	3,016	.....	73	....	2
8	2,206	2,264	58	.....	3	....
Graduates	1,392	1,464	72	.....	5	....
TOTAL.	25,587	22,599		2,988		12

TABLE XLVII

SIZE OF CLASSES IN CONVENTIONAL STUDIES IN ELEMENTARY SCHOOL[1]

GRADE	NUMBER OF CLASSES OF EACH SIZE								TOTAL
	15 TO 19	20 TO 24	25 TO 29	30 TO 34	35 TO 39	40 TO 44	45 TO 49	50 AND OVER	
1	2	2	1	4	7	3	2	2	23
2	.....	.....	.....	2	4	6	.....	.....	12
3	.....	.....	.....	3	5	4	.....	1	13
4	.....	.....	.....	3	2	3	1	.....	9
5	.....	1	1	1	4	4	1	.....	12
6	.....	.....	4	2	3	.....	.....	.....	9
7	.....	.....	3	2	3	1	.....	.....	9
8	2	.....	.....	.....	3	.....	.....	.....	5
TOTAL. .	4	3	9	17	31	21	4	3	92

[1]Two classes for colored children, and all classes of Ambridge, West Gary, and Clarke Station (small outlying schools) are excluded.

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ORGANIZATION AND ADMINISTRATION

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THE GARY PUBLIC SCHOOLS

ORGANIZATION AND ADMINISTRATION

BY
GEORGE D. STRAYER
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FRANK P. BACHMAN

GENERAL EDUCATION BOARD
61 BROADWAY NEW YORK
1918

CONTENTS

INTRODUCTION

The Gary Plan

In the last few years both laymen and professional educators have engaged in a lively controversy as to the merits and defects, advantages and disadvantages of what has come to be called the Gary idea or the Gary plan. The rapidly increasing literature bearing on the subject is, however, deficient in details and too often partisan in tone. The present study was undertaken by the General Education Board at the request of the Gary school authorities for the purpose of presenting an accurate and comprehensive account of the Gary schools in their significant aspects.

In the several volumes in which the main features of the Gary schools are separately considered, the reader will observe that, after presenting facts, each of the authors discusses or—in technical phrase—attempts to evaluate the Gary plan from the angle of his particular interest. Facts were gathered in a patient, painstaking, and objective fashion; and those who want facts, and facts only, will, it is believed, find them in the descriptive and statistical portions of the respective studies. But the successive volumes will discuss principles, as well as

state facts. That is, the authors will not only describe the Gary schools in the frankest manner, as they found them, but they will also endeavor to interpret them in the light of the large educational movement of which they are part. An educational conception may be sound or unsound; any particular effort to embody an educational conception may be adequate or inadequate, effective or ineffective. The public is interested in knowing whether the Gary schools as now conducted are efficient or inefficient; the public is also interested in knowing whether the plan as such is sound or unsound. The present study tries to do justice to both points.

What is the Gary plan?

Perhaps, in the first instance, the essential features of the Gary plan can be made clear, if, instead of trying to tell what the Gary plan is, we tell what it is not. Except for its recent origin and the unusual situation as respects its foreign population, Gary resembles many other industrial centers that are to be found throughout the country. Now, had Gary provided itself with the type of school commonly found in other small industrial American towns, we should find there half a dozen or more square brick "soap-box" buildings, each accommodating a dozen classes pursuing the usual book studies, a playground, with little or no equipment, perhaps a basement room for manual training, a laboratory, and a cooking room for the girls. Had Gary played safe, this is the sort of school and school equipment that it would now possess. Provided with this conventional school

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system, the town would have led a conventional school life—quiet, unoffending, and negatively happy—doing as many others do, doing it about as well as they do it and satisfied to do just that.

As contrasted with education of this meager type, the Gary plan is distinguished by two features, intimately connected with each other:

First—the enrichment and diversification of the curriculum;

Second—the administrative device that, for want of a better name, will be tentatively termed the duplicate school organization.

These two features must first be considered in general terms, if the reader is to understand the detailed description and discussion.

As to the curriculum and school activities. While the practice of education has in large part continued to follow traditional paths, the progressive literature of the subject has abounded in constructive suggestions of far-reaching practical significance. Social, political, and industrial changes have forced upon the school responsibilities formerly laid upon the home. Once the school had mainly to teach the elements of knowledge; now the school is charged with the physical, mental, and social training of the child. To meet these needs a changed and enriched curriculum, including community activities, facilities for recreation, shop work, and household arts, has been urged on the content side of school work; the transformation of school aims and discipline

on the basis of modern psychology, ethics, and social philosophy has been for similar reasons recommended on the side of attitude and method.

These things have been in the air. Every one of them has been tried and is being practised in some form or other, somewhere or other. In probably every large city in the country efforts have been made, especially in the more recent school plants, to develop some of the features above mentioned. There has been a distinct, unmistakable, and general trend toward making the school a place where children "live" as well as "learn." This movement did not originate at Gary; nor is Gary its only evidence. It is none the less true that perhaps nowhere else have the schools so deliberately and explicitly avowed this modern policy. The Gary schools are officially described as "work, study, and play" schools—schools, that is, that try to respond adequately to a many-sided responsibility; how far and with what success, the successive reports of the Gary survey will show.

It must not, however, be supposed that the enriched curriculum was applied in its present form at the outset or that it is equally well developed in all the Gary schools. Far from it. There has been a distinct and uneven process of development at Gary; sometimes, as subsequent chapters will show, such rapid and unstable development that our account may in certain respects be obsolete before it is printed. When the Emerson school was opened in 1909, the equipment in laboratories, shops, and museums, while doubtless superior to what

ıs offered by other towns of the Gary type, could have
en matched by what was to be found in many of the
tter favored larger towns and cities at the same period.
ıe gymnasium, for example, was not more than one
ird its present size; the industrial work was not un-
ecedented in kind or extent; the boys had woodwork,
e girls cooking and sewing. But progress was rapid:
inting and printing were added in 1911; the foundry,
rge, and machine shop in 1913. The opportunities
: girls were enlarged by the addition of the cafeteria in
13. The auditorium reached its present extended use
recently as the school year 1913–14. The Froebel
hool, first occupied in the fall of 1912, started with
ilities similar to those previously introduced piecemeal
:o the Emerson.

These facilities, covering in their development a period
years, represent the effort to create an elementary
ıool more nearly adequate to the needs of modern
ban life. The curriculum is enriched by various ac-
ities in the fields of industry, science, and recreation.
ıestions as to the efficiency with which these varied
tivities have been administered will be discussed by
e various contributors to the present study. Mean-
ile, it is perhaps only fair to point out that the modern
ovement calls not only for additions to, but elimina-
ns from, the curriculum and for a critical attitude
ward the products of classroom teaching. How far, on
e academic side, the Gary schools reflect this aspect
the modern movement will also presently appear.

The administrative device—the "duplicate" organization, noted above as the second characteristic feature of the Gary plan—stands on a somewhat different footing, as the following considerations make plain.

Once more, Mr. Wirt was not the inventor of the intensive use of school buildings, though he was among the first—if not the very first—to perceive the purely educational advantage to which the situation could be turned. The rapidity with which American cities have grown has created a difficult problem for school administrators—the problem of providing space and instruction for children who increase in number faster than buildings are constructed. The problem has been handled in various ways. In one place, the regular school day has been shortened and two different sets of children attending at different hours have been taught daily in one building and by one group of teachers. Elsewhere, as in certain high schools, a complete double session has been conducted. The use of one set of schoolrooms for more than one set of children each day did not therefore originate at Gary.

Another point needs to be considered before we discuss the so-called duplicate feature of the Gary plan. In American colleges, subjects have commonly been taught by specialists, not by class teachers. The work is "departmentalized"—to use the technical term. There is a teacher of Latin, a teacher of mathematics, a teacher of physics, who together instruct every class—not a separate teacher of each class in all subjects. Latterly,

Representative of Poorer Residential Section

epartmentalization has spread from the college into ıe high school, until nowadays well organized high :hools and the upper grades of elementary schools are uite generally "departmentalized," i.e., organized with ɔecial teachers for the several subjects, rather than ith one-teacher for each grade.

Out of these two elements, Gary has evolved an admin-trative device, the so-called duplicate school, which, ɔm the standpoint of its present educational signifi-ıce, does indeed represent a definite innovation.

For the sake of clearness, it will be well to explain the eory of the duplicate school by a simplified imaginary ample:

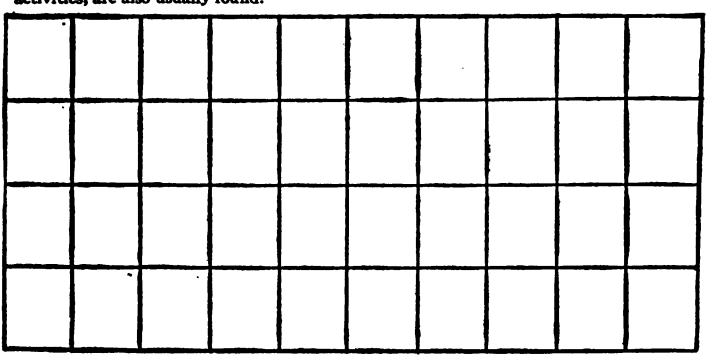
Let us suppose that elementary school facilities have be provided for, say, 1,600 children. If each class is contain a maximum of 40 children, a schoolhouse of rooms would formerly have been built, with perhaps ew additional rooms, little used, for special activities; cept during the recess (12 to 1:30) each recitation om would be in practically continuous use in the old-ıe subjects from 9 to 3:30, when school is adjourned till xt morning. A school plant of this kind may be presented by Figure I, each square representing a hoolroom.

The "duplicate" school proposes a different solution. stead of providing 40 classrooms for 40 classes, it quires 20 classrooms, capable of holding 800 children; d further, playgrounds, laboratories, shops, gardens, mnasium, and auditorium, also capable of holding

800 children. If, now, 800 children use the classrooms while 800 are using the other facilities, morning and afternoon, the entire plant accommodates 1,600 pupils throughout the school day; and the curriculum is greatly enriched, since, without taking away anything from their classroom work, they are getting other branches also. A school thus equipped and organized may be represented

FIGURE I
REPRESENTS OLD-FASHIONED SCHOOLHOUSE

40 rooms for 40 classes, of 40 children each, i. e., facilities for the academic instruction of 1,600 children. A school yard and an extra room or two, little used, for special activities, are also usually found.

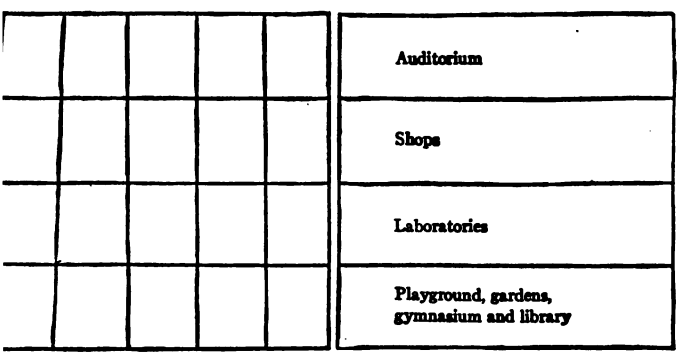


by Figure II, in which A represents 20 classes taking care of 40 children each (800 children), and B represents special facilities taking care of 800 children. As A and B are in simultaneous operation, 1,600 children are cared for.

This method of visualizing the "duplicate" school serves to correct a common misconception. The plan aims to intensify the use of schoolrooms; yet it would be

incorrect to say that 20 classrooms, instead of 40, as under the old plan, accommodate 1,600 children. For while the number of classrooms has been reduced from 40 to 20, special facilities of equal capacity have been added in the form of auditorium, shops, playground, etc. The 20 classrooms apparently saved

FIGURE II
REPRESENTS THE GARY EQUIPMENT



ave been replaced by special facilities of one kind or nother. The so-called duplicate organization and ıe longer school day make it possible to give larger cilities to twice as many children as the classrooms alone ɔuld accommodate. The duplicate school, as devel-ɐd at Gary, is not therefore a device to relieve conges-ɔn or to reduce expense, but the natural result of orts to provide a richer school life for all children.

The enriched curriculum and the duplicate organization support each other. The social situation requires a scheme of education fairly adequate to the entire scope of the child's activities and possibilities; this cannot be achieved without a longer school day and a more varied school equipment. The duplicate school endeavors to give the longer day, the richer curriculum, and the more varied activities with the lowest possible investment in, and the most intensive use of, the school plant. The so-called duplicate school is thus a single school with two different types of facilities in more or less constant and simultaneous operation, morning and afternoon.

Such is the Gary plan in conception. What about the execution? Is it realized at Gary? Does it work? What is involved as respects space, investment, etc., when ordinary classrooms are replaced by shops, playgrounds, and laboratories? Can a given equipment in the way of auditorium, shops, etc., handle precisely the same number of children accommodated in the classrooms without doing violence to their educational needs on the one hand, and without waste through temporary disuse of the special facilities, on the other? To what extent has Gary modified or reorganized on modern lines the treatment of the common classroom subjects? How efficient is instruction in the usual academic studies as well as in the newer or so-called modern subjects and activities? Is the plan economical in the sense that equal educational advantages cannot be procured by

ny other scheme except at greater cost? These and ther questions as to the execution of the Gary plan are, s far as data were obtainable, discussed in the separate olumes making up the present survey.

The concrete questions above mentioned do not, how-ver, exhaust the educational values of a given school tuation. From every school system there come im-onderable products, bad as well as good. Aside from l else, many observers of the Gary schools report one ich imponderable in the form of a spiritual something hich can hardly be included in a study of administra-on and eludes the testing of classroom work. These bservers have no way of knowing whether Gary school sts are high or low; whether the pupils spell and add as ell as children do elsewhere; but, however these things ay be, they usually describe the pupils as characterized / self-possession, resourcefulness, and happiness to an usual degree. While different schools and indeed fferent parts of the same school vary in this respect, e members of the survey staff agree that, on the whole, ere is a basis of fact for these observations. Gary is us something more than a school organization charac-rized by the two main features above discussed.

The reason is not far to seek. Innovation is stimu-ting, just as conformity is deadening. Experiment in this sense a thing wholesome in itself. Of course must be held to strict accountability for results; and is study is the work of persons who, convinced of the cessity of educational progress, are at the same time

solicitous that the outcome be carefully observed. The fact that customary school procedure does not rest upon a scientific basis, does not willingly submit itself to thorough scrutiny, is no reason for exempting educational innovations from strict accountability. The very reverse is indeed true; for otherwise innovation may imperil or sacrifice essential educational values, without actually knowing whether or not it has achieved definite values of its own. Faith in a new program does not absolve the reformer from a watchful and critical attitude toward results. Moreover, if the innovator formulates his purposes in definite terms and measures his results in the light of his professed aims, the conservative cannot permanently escape the same process. Gary, like all other educational experiments, must be held accountable in this fashion. Subject however to such accountability, the breaking of the conventional school framework, the introduction of new subject matter or equipment, even administrative reorganization, at Gary as elsewhere, tend to favor a fresher, more vigorous interest and spirit. Defects will in the following pages be pointed out in the Gary schools—defects of organization, of administration, of instruction. But there is for the reasons just suggested something in the Gary schools over and above the Gary plan. Problems abound, as in every living and developing situation. But the problems are the problems of life, and, as such, are in the long run perhaps more hopeful than the relatively smooth functioning of a stationary school system. Thus, not-

withstanding the defects and shortcomings which this study will candidly point out, the experiment at Gary rightly observed and interpreted is both interesting and stimulating.

ORGANIZATION AND ADMINISTRATION

I. PRESENT DAY PROBLEMS

POPULAR interest in Gary's educational experiment arises in large measure from the effort at Gary to deal with some of the pressing problems f public education. It is well, therefore, before de-:ribing the organization and administration of the Gary :hools to review briefly the main problems with which oards of education and superintendents are now con-·onted. The more important of these may be stated s follows:

(1) How may the elementary curriculum be mod-:nized so as to provide adequately for:

(a) The intellectual, moral, social, and industrial demands of a democratic society?

(b) Individual differences in physical endowment, mental ability, interests, and vocational outlook?

(2) How may schools with modernized programs be ·ganized so as to procure a maximum of teaching effiency?

(3) Can schools be provided with the buildings, ıe facilities, and the teachers required by a modern :ogram and be maintained with such funds as an Ameriın municipality will furnish?

Let us consider briefly the situation in respect to each of these problems.

MODERNIZING THE CURRICULUM

At bottom, the problems above mentioned revolve about modernization of the school program. A lively discussion is in progress among both teachers and laymen on this subject. Such terms as "a modern school," "a modern curriculum" are in common use. It is important to point out, however, that these conceptions have not yet been reduced to definite and generally accepted form. The goal which progressive educators have in mind may perhaps be indicated by Professor Hanus's characterization of the modern school:

"The education demanded by a democratic society to-day is an education that prepares a youth to overcome the inevitable difficulties that stand in the way of his material and spiritual advancement; an education that, from the beginning, promotes his normal physical development through the most salutary environment and appropriate physical training; that opens his mind and lets the world in through every natural power of observation and assimilation; that cultivates hand-power as well as head-power; that inculcates the appreciation of beauty in nature and in art, and insists on the performance of duty to self and to others; an education that in youth and early manhood, while continuing the work already done, enables the youth to discover his own powers and limitations, and that impels him through oft-repeated intel-

Emerson School Building

lectual conquests or other forms of productive effort to look forward to a life of habitual achievement with his head or his hands, or both; that enables him to analyze for himself the intellectual, economic, and political problems of his time, and that gives the insight, the interest, and the power to deal with them as successfully as possible for his own advancement and for social service: and, finally, that causes him to realize that the only way to win and to retain the prizes of life, namely, wealth, culture, leisure, honor, is an ever-increasing usefulness, and thus makes him feel that a life without growth and without service is not worth living."[1]

The execution of any such scheme calls for adequate facilities and organization—a new and different type of plant, a revised program, a differentiated corps of teachers, a changed spirit in instruction. In all these respects progress has been made. Communities able to afford the necessary expenditure have begun to construct modern school buildings and to reconstruct buildings already in use, so as to provide more or less satisfactory facilities in the way of gymnasiums, swimming pools, shops, and laboratories. But progress has been very uneven. No city has as yet executed a consistent policy. Many large cities still offer little beyond the traditional book studies. Not infrequently a period or two a week for girls in cooking and sewing, and an equal amount of time for boys in manual training in the two or three

[1]Hanus: A Modern School (pp. 3-4).

upper grades of the elementary school, represent the total departure from the meager traditional scheme.

The modern viewpoint calls, however, for adaptation as well as enrichment. The more liberal curriculum needs to be adjusted to the varying needs of children who differ in capacity. Some progress—also uneven, to be sure—can be reported in this matter. Most of our larger cities now have separate classes and special programs for the mentally backward, for the blind, the deaf, and for children suffering with tuberculosis. Many cities provide differentiated courses in the upper grades, and in large schools, when there are a number of classes of the same grade, children are placed in the group in which they can do their best work. Nevertheless, statistics of elimination and retardation make clear that the schools have not yet adequately met the problem of providing programs adapted to wide differences in physical endowment, mental capacity, and vocational destination.

Again, the modern school, in the sense in which Professor Hanus uses the term, does something more than teach and train. It aims to concentrate and localize the forces and agencies which make for child welfare. It furnishes medical inspection, and, when necessary, medical treatment; dental clinics, with free service for children whose parents cannot afford to pay; and play and recreation under school supervision. These are integral parts of a program which seeks to provide opportunity not simply to master the tools of learning, but also to place children in contact with the world and the

society in which they live and to make of them vigorous and capable boys and girls on the physical, social, and moral side as well as the intellectual.

INCREASING THE EFFICIENCY OF TEACHERS

Much has also been accomplished in developing better teachers. More has been required of those entering the profession, and a more efficient type of supervision has been generally introduced. Moreover, administrators are realizing that expert teaching cannot be expected from a single teacher in from eight to fifteen subjects. In many cities the seventh and eighth grades, and in some the sixth and even the fifth, have been organized so as to give to each instructor one or two subjects, instead of asking him to cover the whole field. But administrative officers hesitate to carry the departmental idea into the lower grades. Nevertheless, the problem must be faced if the elementary program is to be completely modernized, and experiments in this direction are worthy of careful study.

FINANCING THE SCHOOLS

The adequate financing of public education on this broader basis is a difficult undertaking. Cities are in debt for school buildings and for other public improvements to the limit permitted by law, and in some cases almost to the point of bankruptcy. The demand for a modern curriculum, involving large additions to buildings and grounds, is frequently met with the objection

that the city cannot afford to make the required investment—a forcible argument in a community, already bonded to the limit, which finds itself in urgent need of better streets, better fire protection, more adequate police, larger and more far reaching provision for public health. Any proposal, therefore, which promises to make a dollar buy more deserves serious consideration.

The Gary schools are of more than local interest because they have tried to deal with these problems. They have made certain experiments looking to the enrichment and differentiation of the curriculum; certain innovations in the organization of the teaching staff; and they are trying to finance their enlarged facilities with funds raised by taxation. What they have done in the way of organization, administration, and finance cannot, however, be understood except in the light of the program of studies offered. The central problem is the problem of the curriculum, for on the educational opportunities thus offered depend the facilities that must be provided, the type of organization needed to procure their effective and economical use, the quality and numbers of the teaching staff, and, finally, the amount of money that must needs be raised. To the Gary program of studies and to the way in which this program is organized and administered, our attention must, therefore, first be directed.

II. PROGRAM

OUR discussion of the Gary program of studies is confined to the elementary school, because the high school course is of conventional character.[1] The discussion is based on illustrations from the programs of particular schools. The nine schools composing the system vary in size from the West Gary school, with two teachers and 46 pupils, to the Froebel school, with 58 teachers and an enrollment of 2,087 children. The number of teachers, the enrollment, and the average daily attendance at each school for 1915–1916 were as follows:

SCHOOLS	NUMBER OF TEACHERS	TOTAL ENROLLMENT, 1915–1916	AVERAGE DAILY ATTENDANCE
Froebel.....	58	2,087	1,503
Emerson.....	33	967	742
Jefferson.....	20	1,011	728
Beveridge.....	14	688	520
Glen Park....	8	315	224
4th Avenue...	7	347	254
Ambridge.....	3	146	92
Clarke.....	2	52	39
West Gary....	2	46	30
Total.....	147	5,654	4,132

[1] For discussion of the high school program, see The Gary Public Schools: A General Account, Ch. V.

TYPES OF WORK PROVIDED

The elementary program of these schools provides for each class, as a rule, four distinct types of instruction:

1. Academic work—the traditional school subjects—including reading, spelling, grammar, writing, arithmetic, geography, and history.

2. Special work, including handwork, drawing, science, cooking, sewing, manual training, forge, foundry, print shop, etc.

3. Auditorium, including singing, music on the phonograph, or children's performances on musical instruments, moving pictures, dramatics, individual or class exercises, etc.

4. Physical education and play, including gymnastic exercises, and play in the playroom, on playgrounds or athletic fields.

Consider, for example, the schedule of a primary grade at the Emerson school in the spring term, 1915–1916:

8:15– 9:15	Language and numbers (academic)
9:15–10:15	Handwork and nature study (special)
10:15–11:15	Play and physical training
11:15–12:15	Luncheon
12:15– 1:15	Handwork and nature study (special)
1:15– 2:15	Language and numbers (academic)
2:15– 3:15	Auditorium
3:15– 4:15	Play and physical training

This class, it will be observed, has daily two hours of academic work, 8:15 and 1:15; two hours of special work,

9:15 and 12:15; one hour of auditorium, 2:15; and two hours of play and physical training, 10:15 and 3:15, making in all a seven hour instruction day for the children, with an additional hour for luncheon.

The schedule of a sixth grade Emerson class illustrates the same point:

8:15– 9:15	Auditorium
9:15–10:15	Play and physical training
10:15–11:15	Mechanical drawing (boys)
	Teachers' assistants (girls) (special)
11:15–12:15	Mechanical drawing (girls)
	Teachers' assistants (boys) (special)
12:15– 1:15	Luncheon
1:15– 2:15	History and reading (academic)
2:15– 3:15	Arithmetic and geography (academic)
3:15– 4:15	Language (academic)

This class has three hours of academic work, two hours of special, and one hour each of auditorium and physical training and play.

The work of all classes in the Emerson school is similarly divided, as can be seen from Table I.[1] What is true of the types of work at Emerson school is true of the Froebel, Jefferson, and Beveridge schools, and almost equally true of the very smallest Gary schools,[2] as the following schedule of a primary class at the 24th Avenue school shows:

[1] See page 13.

[2] For complete program of Emerson, see Table A of the Appendix; of Froebel, Table B; of Beveridge, Table C.

SCHOOL HOURS	SUBJECT	TEACHERS
8:45– 9:10	Music	B
9:10– 9:30	Literature	B
9:30–10:15	Play	C
10:15–10:45	Numbers	A
10:45–11:00	Phonics	A
11:00–11:30	Reading	A
11:30–11:45	Language	A
11:45– 1:00	Luncheon	
1:00– 1:45	Play	C
1:45– 2:05	Nature Study	B
2:05– 2:30	Drawing	B
2:30– 2:45	Writing	C
2:45– 3:00	Phonics	C
3:00– 3:30	Reading	C
3:30– 3:45	Spelling	C
3:45– 4:00	Language	C

The plant of the 24th Avenue school consists of five portables and an old one room rural building. There are two kindergarten and five first and second grade classes. Yet these primary classes go to three different teachers and have three separate types of work: (a) the usual primary academic instruction; (b) special work, including literature, music, drawing, and nature study; and (c) play.

VARIETY OF SPECIAL WORK AND CYCLES IN COURSES

The Gary program is further distinguished by the variety of special work provided. There are, for example, at Emerson and Froebel separate elementary courses in chemistry, physics, botany, and zoology.

Handwork Room—Jefferson School

TABLE I[1]

TYPES OF WORK OF ALL ELEMENTARY CLASSES—EMERSON SCHOOL SPRING TERM, 1915–1916

SCHOOL HOURS	CLASSES SCHEDULED FOR: ACADEMIC WORK	SPECIAL WORK[2]	AUDITORIUM	GYMNASIUM PLAY-GROUND PLAY-ROOM	LUNCHEON
8:15	5, 9	8, 11, 13, 7, 15	10, 12, 14	4, 6	
9:15	11, 7, 10	5, 9, 13, 15	4, 6, 8	12, 14	
10:15	6, 8, 9, 13, 15	7, 11, 12, 4, 10, 14		5	
11:15	4, 11	12, 6, 14, 10		7, 8	5, 9, 13, 15
12:15	9, 15, 13	5			4, 6, 7, 8, 10, 11, 12 14
1:15	5, 7, 11, 15, 12, 10, 14	8, 9		4, 6, 13	
2:15	6, 12, 8, 14, 10, 13	4	5, 7	9, 11, 15	
3:15	4, 12, 14	6	9, 11, 13, 15	5, 8, 7, 10	

[1]The numbers in Table I under Academic Work, Special Work, etc., and to the right of School Hours are the official numbers of the respective classes. To read the program of a given class, follow the class number from period to period and note the kind of work for which the class is scheduled.

The different elementary classes of Emerson for the spring term, 1915–1916, bore the following numbers:

4 Second grade, A and B sections
5 First grade, B and C sections
6 First grade, A, and second grade, C sections
7 Third grade, B and C sections
8 Third grade, A, and fourth grade, C sections
9 Fourth grade
10 Seventh grade, C section
11 Fifth grade
12 Sixth grade
13 Seventh grade
14 Eighth grade
15 Eighth grade

[2]Includes mechanical and freehand drawing, science, cooking, sewing, shop, helpers, teachers' assistants.

Emerson offers forge, foundry, machine shop, and printing. Froebel gives cabinet work, tinsmithing, plumbing, painting, printing, and shoe cobbling. In order that children may have opportunity to participate during their school careers in a number of such activities, special work in all Gary schools is broken up into short courses from ten weeks to a half year in length, and offered in cycles.

For example, class 7 of Froebel, first grade, had nature study the first two terms of 1915–1916, and handwork and drawing the last two terms. Class 41, sixth grade, took, for the first ten weeks of 1915–1916, either physics or botany; the second ten weeks the entire class served as teachers' assistants; the third ten weeks the boys took shop work and the girls sewing; and the fourth ten weeks the boys went to mechanical drawing and the girls to freehand drawing.

While there are thus frequent changes in special work, and consequent changes in class programs, all children of the lower grades—at least, in the larger schools—are supposed to have an equal and given amount of nature study, handwork, and freehand drawing, music, expression and application;[1] and all children of the upper grades, an equal and given amount of drawing, science, and shop work, although the kind of drawing and science studied, and the particular shop experiences, may and do differ with the pupil, the class, and the school.

[1]Expression is instruction in story telling, dramatization, and literature. Application includes special drill and the application of principles to practical every-day problems. For full discussion, see The Gary Public Schools: A General Account, Chapter V.

Occasionally classes fail to get in given grades the specified amount of special instruction, and now and then classes get double the normal allotment. Yet these class cycles in special work are operated, on the whole, with commendable regularity, so that the number of special activities in which each class participates and the amount of time each class gives to each special activity are surprisingly uniform. For example, at Jefferson all classes through the 3C grade had at some time during 1915–1916 music, expression, handwork or drawing, nature study, and application; and, with two exceptions, each class devoted the same amount of time respectively to these exercises. (Table II[1].) Similarly, all sixth and upper grade classes had nature study, drawing, cooking, sewing, and shop (girls taking cooking and sewing, and boys, shop), and the several classes were in these respective branches approximately the same length of time.[2] At the same time attention must be called to the fact that though classes are for the most part regularly scheduled for special work, individual pupils are not infrequently quite irregular in the amount of special work they receive. This apparent inconsistency arises from the habit of allowing individuals to leave the class to which they properly belong for all sorts of reasons—some doubtless good, some undoubtedly questionable.[3]

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[1] See page 16.

[2] For regularity of changes at Froebel, see Appendix, Table D.

[3] This point is more fully explained on pages 103-107.

TABLE II

SPECIAL WORK OF ALL JEFFERSON CLASSES DURING 1915–1916 AND THE NUMBER OF HOURS FOR WHICH EACH ACTIVITY WAS SCHEDULED

CLASS NUMBER	GRADE IN			NUMBER OF HOURS CLASSES WERE SCHEDULED FOR:							
	SEPTEMBER	DECEMBER	MARCH	MUSIC	EXPRESSION	HANDWORK OR DRAWING	COOKING	SEWING	SHOP (Boys)	NATURE STUDY	APPLICATION
1	1C	1B	1B	50	50	100				100	100
2	1A	2C	1A	50	50	100				100	100
4	1C	1B	1A	50	50	100				100	100
5	1B	1A	2C	50	50	100				100	100
3	2C	2B	2A	50	50	50				100	100
7	2B	2A	3C	50	50	50				100	100
6	2A	3C	3B	50	50	50	50	50	100	50	100
8	3C	3B	3A	50	50	50	100		100	50	100
9	3B	3A	4C	50	50	50	50	50	100	50	100
12	3A	4C	4B	50	50	50	100		100	50	100
12	4C	4B	4A	50	50	50	100		100	50	100
11	4B	4A	5C	25	25	150	50	50	100	50	50
10	4A	5C	5B	50	50	50	50	50	100	50	100
10	5C	5B	5A	50	50	50	50	50	100	50	100
15	5B	5A	5A	25	25		50	50	100	50	
13	5A—6C	5A—6C	6C			50	100		100	50	
16	6B	6A	7C			50	100		100	50	
17	6A	6A	7C			50		100	100	50	
17	7A	7A	7A			50		100	100	50	
14	7C	7B	7A			50	100		100	50	
18	8C	8B	8A			50		100	100	50	

DIVISION OF TIME

In the seven hour day of the larger schools, the approximate time allotment to the four different types of work provided by the Gary program is as follows: to academic work, 120 to 180 minutes; to special work, 120 minutes; to auditorium, 60 minutes; and to physical training and play, 60 to 120 minutes. Although the actual allotments vary with the term, the school, the grade, and at times the individual pupil, it is intended that physical training and play should be stressed in the lower grades, and academic work in the higher. Accordingly, 120 minutes are the usual assignment in the first classes both to academic work and to physical training and play, whereas in classes for older children academic work receives 180 minutes and physical training and play 60 minutes. The division of time, spring term 1915–1916, for the elementary classes of Emerson is shown in Table III, on the following page.[1]

When the seven hour pupil instruction day is so divided, some parts of the Gary program receive unusual emphasis. A comparison between the time allotted to each subject at Gary and to the same subjects in fifty representative cities of the country shows where unusual emphasis falls. It will be noted from Table IV[2] that Gary gives slightly less time to the three R's than

[1] For the division of the day, spring term 1915–1916, for elementary classes at Froebel, see Appendix, Table E.

[2] See page 19.

TABLE III

DIVISION OF DAY AT EMERSON SCHOOL
SPRING TERM 1915–1916

CLASS NUMBERS AND GRADES	NUMBER OF CLASSES	NUMBER OF MINUTES SCHEDULED FOR:			
		ACADEMIC WORK	SPECIAL WORK[1]	AUDITORIUM	GYMNASIUM PLAYGROUND PLAYROOM
4, 2A-2B; 5, 1B-1C; 6, 1A-2C; 7, 3C-3B; 8, 3A-4C	5	120	120	60	120
9, 4th; 10, 7C; 11, 5th; 12, 6th; 13, 7th; 14, 8th; 15, 8th	7	180	120	60	60

[1]Includes mechanical and freehand drawing, science, cooking, sewing, shop, helpers, teachers' assistants.

the fifty cities in question. The total difference, however, amounts to only 118 hours, which is insignificant when scattered through eight school years. Gary also gives somewhat less time than conventional schools to music, geography, and history, but it should be borne in mind that geography and history exercises, sometimes with moving pictures and sometimes of a more traditional sort, are given as a part of the auditorium work, and that a portion of most auditorium periods is devoted to work in music, involving both the more formal exercises, chorus work, and the enjoyment of music as rendered by pupils and teachers or as reproduced on the victrola. The striking difference between Gary and the fifty

TABLE IV

TOTAL TIME ALLOTMENTS OF GARY AND OF FIFTY REPRESENTATIVE CITIES[1]

SUBJECTS	AVERAGE NUMBER OF HOURS ALLOTTED IN GARY	AVERAGE NUMBER OF HOURS ALLOTTED IN 50 CITIES
The Three R's:		
Reading	1,323	1,280
Language	798	864
Spelling	496	482
Writing	329	388
Arithmetic	958	1,008
Total	3,904	4,022
The Fundamentals:		
The Three R's	3,904	4,022
Geography	238	539
History	339	496
Science	567	331
Total	5,048	5,388
Special Subjects:		
German	62	
Music	188	367
Auditorium	1,600	899[2]
Drawing and Shop	1,605	887
Physical Training and Play	2,697	927[3]
Total	6,152	3,080
Total	11,200	8,468

[1]For the basis of this table and methods of computation, see The Gary Public Schools: A General Account, Ch. V. On the part of Gary the schools taken into account are Emerson, Froebel, and Jefferson. The time allotments, both for Gary and the fifty cities, are for the entire elementary course.

[2]Includes time given to opening exercises and miscellaneous subjects.

[3]Includes time given to physical training and recess.

cities is Gary's emphasis on science, drawing and shop, auditorium, and physical training and play. Gary gives almost twice as much time to auditorium as is ordinarily devoted to opening exercises and miscellaneous matters combined, almost double the common allowance to drawing and shop, and almost treble the average allotment to physical training and recess,[1] resulting in a decided extension and enrichment of the elementary program.[2]

PROGRAMS OF OTHER CITIES

Where other systems[3] have followed the lead of Gary, their programs evidence the same general characteristics, and yet show interesting variations.

In each case the school day has been lengthened, but the added time varies from thirty minutes to as much as two hours.

All schedules provide academic work, special work, auditorium, and physical training and play. The time provisions for the academic studies follow conventional lines. Auditorium has its place in each program, but the use of the auditorium is not uniform. Kansas City, for example, has only two such exercises per week, and the length of the periods varies from forty to sixty minutes.

[1]Even in the smaller schools, which have a six hour pupil instruction day, these studies and activities receive more than the usual emphasis.

[2]For detailed discussion of the course of study, see The Gary Public Schools: A General Account, Ch. V.

[3]One of the authors visited in this investigation the following systems, and this discussion is limited to these: Kalamazoo, Mich., Passaic, N. J., New York, N. Y., Newark, N. J., and Kansas City, Mo.

Cooking Room—Emerson School

Probably the greatest difference is in the type of activities included under special work and in the provision for physical training and play. These vary with the facilities available and with the extent of departmentalization which those in charge of the schools consider feasible. There are also the widest differences in the number of cycles in special work and consequent class changes from room to room. To illustrate: In contrast with the specialized shops of Emerson and Froebel, School Number Twelve of Passaic, New Jersey, provides general rooms for all work in the industrial and household arts below the seventh grade. These general rooms are each furnished for three types of elementary instruction. The equipment consists of a simple assortment of utensils and dishes for cooking; hand machines for sewing; and for handwork and manual training, scissors, rules, sand trays, and benches. Each room has, besides, forty stools, and 280 boxes, for the materials of the pupils using the room.[1]

Despite these differences and variations, the several cities visited allot the conventional amount of time to the old line studies, and in addition give new emphasis to science, the household and industrial arts, and to physical education and play.

SUMMARY

The distinctive features of the Gary elementary program may therefore be summarized as follows:

[1]For the complete program of this school, see Table F of the Appendix.

1. The program presupposes a longer school day. The day for pupils in the larger schools is seven instruction hours, and in the smaller schools, six instruction hours, with an additional hour in both cases for luncheon.

2. The program provides four types of work: academic instruction, including reading, writing, arithmetic, geography, and history; special work, including music, expression, science, household and industrial arts, and drawing; auditorium; and physical training and play. The amount and variety of special work vary from school to school.

3. In order that children may participate in a variety of special activities, courses in special work are from ten weeks to a half year in length and are taken in cycles.

4. The school day is so apportioned among the four types of elementary instruction that the academic branches receive approximately the conventional amount of attention, and unusual emphasis is given to science, the industrial and household arts, auditorium, and physical training and play.

Thus, without disturbing the time allowance of the conventional studies, but by increasing the number of special activities and by emphasizing their importance, Gary enlarges the field of elementary education and puts the elementary school in position to render a fuller service at once to the community and to the child.

III. PLANT

AS WE shall now see, the building facilities provided at Gary have been determined to an unusual degree by the requirements of the school program.

THE EMERSON SCHOOL

Of the nine schools, Froebel and Emerson are the largest. Emerson is a modern building[1] of the kind usually found only in our largest cities, and contains the following service rooms:[2]

30 regular classrooms
7 special rooms adapted to laboratories or art studios
2 household arts rooms
2 industrial arts rooms
1 cabinet shop (a late addition)
12 small inside rooms (for toilets, offices, storage, and the like)
2 offices
1 auditorium
2 gymnasiums
1 swimming pool

[1]See illustration opposite page 4.

[2]This list does not include auxiliary rooms, such as locker rooms, closets, etc.

Although Emerson accommodates both an elementary school and a high school, it is essentially an elementary school building. As such, it embodies a number of unusual features. The original plan did not, however, include all of these. In fact, the requirements of a changing and developing program compelled repeated alterations and additions. Even now most of the special work is conducted in regular classrooms—that is, in rooms which a conventional system would employ for reading or arithmetic. To illustrate, the 30 regular classrooms serve the following purposes:

Kindergarten	1
Academic or regular instruction	10
Nature study and handwork	1
Physics	2
Music	1
Expression	1
Library (regular room)	1
Commercial work	2
Sewing	2
Machine shop	1
Printing shop	1
Superintendent's offices	2
Storerooms	2
Vacant	3
Total	30

Nevertheless, as suggested above, Emerson, as an elementary school building, has uncommon features, among

which are the seven special rooms, each well adapted to the particular purpose for which it is now employed:

Library (special room)	1
Chemistry	1
Fine arts	1
Mechanical drawing	1
Kindergarten	1
Zoology	1
Botany	1
Total	7

The auditorium is unusual in size. The main hall is 60 by 53 feet, with a capacity of 546; the stage is of corresponding size, 50 by 21 feet, and there is a balcony 50 by 32 feet, equipped with fireproof lantern booth and 218 opera chairs.

The present gymnasium facilities are likewise exceptional. The boys' gymnasium contains 3,400 square feet of floor space, and there are similar provisions for the girls. Each gymnasium has lockers, showers, and dressing rooms. In addition, there is an excellent swimming pool, 47 by 27 feet, of varying depths.

So much for the building. What now of the equipment? The kindergarten rooms are particularly attractive. They have the usual kindergarten materials, and are tastefully decorated with appropriate pictures and abundantly supplied with flowers and animal pets.

The regular elementary school rooms—that is, those in which the children receive their academic instruction—

are in striking contrast. These rooms are, to be sure, well lighted, well ventilated, with ceilings of good height, and of standard size. They are furnished with single seated, non-adjustable desks of two or three sizes, supplemented in the primary rooms by kindergarten chairs. They have the usual slate blackboards, teacher's desk, and small flat-top table of general utility. In either front corner stands an attractive case for the basic texts of the children using the room, for ample supplementary books, and for instructional supplies, but this is all. With few exceptions, the rooms themselves are devoid of decorative features.

Three reasons account for the bare appearance of the classrooms. Instruction at Gary is to a considerable extent departmentalized. Most of what the children do in handwork, nature study, science, and drawing, which might give life and color to the room, is kept in the special rooms, leaving the regular rooms with little that lends itself to display. On the other hand, the authorities have intentionally failed to purchase decorations for particular classrooms, centering their efforts on the halls, to the end of making these the museums and art centers of the school. Finally, the teachers have done next to nothing themselves. This is probably due partly to the fact that some have been in the school only a short time, and partly to the fact that regular teachers do not have rooms of their own as they do in conventional school systems.

Of the equipment for handwork, nature study,

music, and expression, there is only the furniture to note—for these classes, with the exception of music, occupy standard classrooms. The handwork room possesses specially designed single seated work desks;[1] a sand box and aquarium constitute the additional equipment for nature study. The music room contains a piano, phonograph, cases for music, music racks, and iron-base revolving chairs of special design and adult size. The expression room has full-sized movable chairs with arm rests. The library is furnished with low book-cases, placed along the side walls, and with the usual flat-top reading tables and library chairs.

How one judges the physics, chemistry, zoology, and botany laboratories, and the fine arts and mechanical drawing studios depends on whether they are regarded from the point of view of elementary or of high school facilities. As high school laboratories and studios they are comparable both in quarters—for, with the exception of physics, they occupy special rooms—and equipment with what is common to our good high schools. As elementary school laboratories and studios they are probably unequaled anywhere in the country. In fact, elementary pupils hardly require such elaborate facilities.

The household arts equipment is ample for simple courses in sewing and dressmaking, consisting of sewing machines, cutting tables, pressing boards, etc., but is scarcely sufficient for advanced high school instruction. This is equally true of the cooking equip-

[1]See illustration opposite page 12.

ment. High school and elementary school pupils use a single kitchen, which serves also the school's cafeteria. In only one respect is the equipment exceptional, and that is in the facilities for preparing food in commercial quantities.[1]

The industrial arts facilities can be appreciated best by listing the fixtures of the respective shops.

The machine shop, in a standard classroom, has three engine turning screw cutting lathes, one universal milling machine, one 24 inch shaper, one 27 inch vertical drill with power feed, one small vertical drill, hand feed, one emery tool grinder. All of these are equipped with individual electrical motor drives. A bench equipped with five vises runs along one side of the shop, and a cupboard for small tools occupies one wall.

The forge shop, in a special room, has five power blast hand forges, a pneumatic crank hammer, one combined power punch and shear, a bench equipped with three vises, an emery wheel, hand tools, and miscellaneous equipment.

The foundry, in a special room, has a 22 inch cupola with charging gallery affording storage for coke and iron, a crucible brass furnace, gas furnace for melting lead or other easily fusible metals, core oven, scales, core bench, electric motor and fan for cupola blast, about a score of small flasks and several of larger size, and kits of molders' tools.

The printing shop, in a standard classroom, has one job

[1]See illustration opposite page 29.

Boys' Playground—Emerson School

press 12 in. by 18 in., one job press 10 in. by 15 in., wire stitcher, lead cutter, imposing stone and frame, metal proof press, numbering machine, multiple power punch, vibrating roller, cutting machine, stock case, case stands, cut cabinet, type and cuts, and miscellaneous tools and equipment. The presses, wire stitcher, and power punch are supplied with individual motors.

The cabinet making and wood turning shops, the one in a special room and the other in one of the small inside rooms, were idle at the time the survey was made.

From the standpoint of the elementary school—and they are used chiefly by elementary pupils—these shops are unique in number and equipment.

Finally, the gymnasium apparatus is simple, but adequate. The girls' gymnasium has a piano and phonograph, but the boys' is without music. Each is furnished with climbing racks, wands, Indian clubs, basketball goals, etc. In addition, the boys' gymnasium has climbing ladders, mats, parallel bars, and bucks.

Emerson's facilities are, however, not all within its walls. The school has unusual provisions for outdoor work, play and recreation. The building stands on the south end of a level improved plot, 607 by 306 feet, with a lawn frontage of 306 by 71 feet. The entire rear portion of the site is given over to outside activities. Directly to the rear of the building on either side, a space 66 by 44 feet supplies a handball court, sand box, and wading pool. North of the drive, which intersects the lot east and west, and on the east, is the playground for

girls and smaller children, the park with its winding walks, ornamental shrubs, and the "zoo," together occupying an area 218 by 176 feet. The playground has swings, ladders, sliding bars, parallel bars, stationary bars, merry-go-rounds, teeter boards, etc. A much used tennis court occupies the center of the park, and along the walk to the left and west and at the rear are the animal houses of the "zoo." To the north of the park, covering a plot 118 by 100 feet, are the poultry yard and poultry houses.

On the left of the building, looking north, and across the drive is the main playground, 336 by 120 feet, designed especially for older boys.[1] Finally, on the extreme north and between the boys' playground on the left and the poultry yard on the right are the school gardens, 118 by 76 feet.

To complete the description, across the street, to the east, is the Emerson athletic field,[2] occupying one entire block, 607 by 286 feet in extent. This field is only partly developed, but when completed will comprise a running track, a football field, a baseball field, and coasting hill.

THE FROEBEL SCHOOL

Having described the Emerson school in detail, we may deal more briefly with the Froebel school, which is of the same general type.[3]

[1] See illustration opposite page 28.

[2] Owned by city, but operated by the Board of Education.

[3] See illustration opposite page 36.

Froebel contains practically the same number and same types of rooms:[1]

28 regular standard classrooms
2 nature study rooms
6 special rooms adapted to laboratories or art studios
2 household arts rooms
2 industrial arts rooms
2 small offices
4 small rooms for rest, offices, or storage
1 auditorium
2 gymnasiums
2 swimming pools

In comparison with Emerson, Froebel has only three structural features of interest: (1) two nature study rooms, constructed by adding observatories to two ground floor standard classrooms and installing demonstration tables; (2) a larger auditorium—the main hall fitted with 598 opera chairs, and the balcony with 235; and (3) an additional pool.

Froebel has undergone repeated alterations and changes. Yet, as in Emerson, rooms are employed for purposes for which they were not originally constructed. To illustrate, take the present use of the twenty-eight standard classrooms, which is as follows:

Kindergarten	1
Academic or regular instruction	15
Handwork	2

[1]This list does not include auxiliary rooms, such as locker and dressing rooms, closets, small storage rooms, etc.

Music	2
Expression	1
Physics	2
Commercial work	1
Mechanical drawing	1
Plumbing	1
Printing	1
Office	1
Total	28

The similarity between Emerson and Froebel extends also to equipment, with the exception of the shops. The only shop common to both schools is the printing shop. Those peculiar to Froebel are the woodworking, sheet metal, plumbing, paint, and shoe shops, which are equipped as follows.

The woodworking shop, in a special room, has an equipment of mill tools, each supplied with individual electric motor, including band saw, circular saw, jointer, planer, mortising machine, swing cutting off saw; three long benches, thirteen individual woodworking benches, each supplied with vises and equipment of small tools; three speed lathes furnished with electric motors, a tool grinder, cupboards, and miscellaneous tools and equipment.

The sheet metal shop, in a special room, has one 36 inch heavy squaring shear, one No. 4 tinner's bench shear, one 36 inch adjustable bar folder, can top folder, 36 by 2 inch pipe forming rolls, 30 inch grooving machine, No. 3 steel cornice brake, No. 2 beading machine, small burring machine, large burring machine, small turner,

large turner, wiring machine, setting down machine, cornice maker's crimper, 2 inch double seamer, and an assortment of bench stakes and mandrels.

The plumbing shop, in a regular classroom, has a plumber's bench and three vises, stock rack, and miscellaneous tools and supplies.

The paint shop, in one of the small basement rooms, has paint, oil, brushes, and miscellaneous supplies.

The shoe shop, in one of the small basement rooms, has benches, cobbler's tools, leather, and other supplies.

In respect to outdoor facilities, Froebel is even more generously provided for than Emerson. For example, the building stands on a magnificent, level, developed site 575 by 820 feet, with a park frontage of 575 by 289 feet. Playgrounds cover an area of 575 by 100 feet, and there are two gardens instead of one as at Emerson, the elementary garden measuring 142 by 131 feet, and the high school garden 148 by 126 feet. Adjoining these grounds to the north is an athletic field 575 by 278 feet, which, although owned by the city, is under the control of the board of education and at the service of Froebel.[1]

To summarize all that has been said: Emerson and Froebel are excellent modern plants, having—at least for elementary school buildings—unusual laboratories and art studios, unusually large auditoriums, exceptional indoor facilities for physical education, and unique outdoor provisions for work, play, and recreation. Also,

[1]See illustration opposite page 44.

they are excellent examples of present day school architecture, with the usual provisions for household and industrial arts, but without special structural provisions for handwork and music.

THE JEFFERSON SCHOOL

Next to Emerson and Froebel, the best plant is Jefferson,[1] built by the Gary Land Company and afterward sold to the board of education. Although erected in 1907, Jefferson was of the type built twenty to twenty-five years ago to accommodate the conventional school program. The requirements of the Gary program necessitated additions and alterations, so that Jefferson is now a good example of a building remodeled so as to permit the introduction of some modern features. As remodeled, Jefferson provides the following facilities:

Regular classrooms		9
Kindergarten	1	
Academic instruction	6	
Handwork and drawing	1	
Music and expression	1	
Small classroom (23 x 20)		1
Nature study room		1
Cooking and sewing		1
Industrial arts		1
Mechanical drawing		1
Auditorium		1
Gymnasium		1
Offices		2

[1]See illustration opposite page 52.

These facilities are, however, not as adequate nor as ample as might appear from the above list. To be sure, the regular classrooms, although the lighting is not entirely satisfactory, are unusually spacious—33 by 27 feet, with cloak halls 27 by 7 feet—and some of them are attractively decorated. On the other hand, the nature study room is merely a regular classroom, with a partition running across ten feet from the rear to make an observatory and storage room, and yet it serves well the desired purpose. The auditorium, on the second floor, is 43 by 40 feet, fitted with 234 opera chairs, and has a stage 27 by 11 feet. Cooking and sewing share one of the good sized basement rooms, and although the room has been done over and specially equipped, it is neither well lighted nor well ventilated. The basement quarters of mechanical drawing and of industrial arts are even less desirable and should perhaps not be used for instruction. The gymnasium, occupying the remodeled attic, is inconveniently located and its use involves a certain fire hazard.

Jefferson also has outside facilities, although these are small in comparison with those of the two major plants; nevertheless, Jefferson has an attractive lawn frontage a school garden 80 by 70 feet, a playground for girls and smaller children, 127 by 124 feet, and a playground and athletic field for older boys, 255 by 126 feet.

THE GLEN PARK SCHOOL

The other parts of the Gary school plant are very much inferior to the three schools we have described. They are, indeed, distinctly inadequate. The best of these is

the Glen Park school, located in a community well established before the founding of Gary and annexed in 1912 with other outlying districts. The Glen Park plant comprises a new two story, six room brick structure, with a gymnasium addition, and three portables[1]; but even here, although the plant is ill adapted, there are evidences of effort to extend the curriculum and enrich school life.

The two upper rooms of the main structure, each 29 by 25 feet, with improvised cloak hall, 25 by 6 feet, are reserved for academic instruction; a kindergarten occupies one of the first floor rooms, 34 by 29 feet, and the other, also 34 by 29 feet, serves for classes in music, expression, and auditorium. The gymnasium, 44 by 18 feet, is so contrived that, when not in use, it provides the auditorium with a stage.

One of the two basement rooms, neither of which, owing to poor lighting and ventilation, is satisfactory, accommodates the cooking and sewing, and the other, the manual training. One portable is vacant, but used occasionally for physical training; a regular teacher occupies the second; and the third is given up to handwork, mechanical drawing, and nature study.

Since portables of practically one type are found at each of the remaining plants, a single description will answer for all. Each portable provides a classroom 25 by 31 feet, amply lighted from one side. The low, gabled roof is usually of tin, the ceiling, of sheet iron. While the floor is substantial, the side walls are

[1]See illustration opposite page 60.

Froebel School Building

frail, composed of upright wall posts, exposed on the inside and covered on the outside with thin weather boarding. A lean-to, six feet wide and generally extending across one entire end, provides an entrance hall and cloak room, and when there is only one outside door there is usually also a small storage room. Such school accommodations, though unattractive, answer fairly well as temporary quarters, and when heated with standard heaters, as is the rule at Gary, are reasonably comfortable. They serve various purposes, but, whether provided for regular academic instruction or special activities, they are furnished and equipped like corresponding rooms of the main buildings, although generally less well.

Though Glen Park is a small school, it has outside facilities not always equaled by the best plants of other cities. It occupies a site 254 by 203 feet. To the front of the building, on the south, are lawn plots, 63 by 50 feet and 97 by 79 feet, respectively; the school garden measures 97 by 61 feet; the poultry run, 57 by 9 feet; and there is a well equipped playground, 156 by 139 feet.

THE BEVERIDGE SCHOOL

The Beveridge school, in an old settlement on the southwest which was incorporated as a part of Gary in 1912, is even less adequate than the Glen Park school. The plant consists of a relatively new, but extremely poor, six room brick building, an old two story, two room frame structure, and five portables.[1]

[1] See illustration opposite page 68.

West Gary, located at the extreme west of the city, occupies two portables, one of which is vacant part of the time. But even here there is an attempt at gardening, and both space and equipment are provided for play and recreation.

SUMMARY

The different parts of the Gary school plant thus represent extremes. The two modern buildings, Emerson and Froebel, the only schools of size planned and erected by the present school authorities, fairly realize the Gary ideal and are excellent. Remodeled Jefferson is not unlike the older buildings in many cities. Glen Park and Beveridge are entirely inadequate for their present programs and enrollment. The remaining plants, with the exception of Clarke, are confessedly makeshifts. Nevertheless, it is worthy of note that the ideal of an enriched curriculum and enriched school life permeates the system throughout, for all schools, even those in the least favored districts, have some facilities, however meager, for nature study, gardening, household and industrial arts, physical education, recreation and play. It is also worthy of note that there is a close relation between the plant provided and the program of studies offered. Finally it is to be said that two of the obviously unsatisfactory plants, Glen Park and Beveridge, were erected by small communities, since annexed to Gary. Gary has simply tried to make the best of them.

IV. ORGANIZATION

THE requirements of the program also determine in large measure the organization of the Gary schools.

DEPARTMENTAL INSTRUCTION

As stated before, administrators, even those dealing with conventional courses, realize that a teacher cannot teach well a dozen different studies. To meet the requirements of their programs, high schools generally departmentalize. A single instructor teaches one or at most two or three academic branches, and there is usually a teacher for each of the sciences, as well as separate teachers for drawing, music, the household arts, the industrial arts, and physical training. Frequently there is a similar division of work in the seventh and eighth grades of the elementary school, but this seldom goes lower.

Owing to the conventional character of their programs, the Gary high schools have, with the probable exception of science and shops, only the usual amount of departmentalization.

On the other hand, the amount of departmentalization in the seventh and eighth grades is uncommonly

large. The courses of these grades include reading, spelling, language, handwriting, arithmetic, geography, and history, besides freehand and mechanical drawing, auditorium, play and physical training, and, in the two largest schools, physics, chemistry, zoology and botany, cooking and sewing for girls, and from three to a half dozen specialized industrial activities for boys. Obviously, no single teacher can carry such a program, nor can a single room be appropriately equipped for all these branches. It is necessary either to be content with a less extended course of study, or to departmentalize, equip special rooms, and employ teachers with special training for particular fields. Gary chooses the latter alternative. Accordingly, in the two largest schools, seventh and eighth grade instruction is divided among something like thirteen teachers for girls and as many as seventeen for boys, approximately as follows:

Academic studies	3
Auditorium	1
Physical education	1
Science	4
Freehand drawing	1
Mechanical drawing	1
Cooking	1
Sewing	1
Industrial arts	3–6

In consequence, seventh and eighth grade pupils seldom have less than eight to ten different teachers during the

course of a single year. This, however, does not mean that when a child advances from the seventh to the eighth grade he comes under a new group of teachers. The same special teachers have classes in both grades, so that a child advancing from the lower to the higher may change only one or two instructors.

The opportunities offered in the two largest schools to fourth, fifth, and sixth grade pupils are practically the same as those offered to the seventh and eighth grades; the only real difference is in the level of the instruction. In consequence, there is no difference in the amount of departmentalization. The only exception worthy of note is this: Fourth to sixth grade pupils have as a rule only one or two academic instructors, whereas seventh and eighth grade pupils ordinarily have three. The total number of teachers that a class of fourth, fifth, or sixth grade pupils has in a single year is, therefore, seldom less than nine.

To meet the requirements of the primary program (grades 1 to 3) the work is divided, in the larger schools, approximately as follows:

Academic studies	1	teacher
Auditorium	1	"
Physical education	1	"
Music	1	"
Expression	1	"
Application	1	"
Handwork and drawing	1	"
Nature study	1	"

Primary pupils, therefore, instead of having a single teacher, as is the common practice, generally have, in the two larger schools, as many as eight different instructors in the course of a school year, although they may not have more than one or two additional new teachers until after they pass into the fourth grade.

Departmentalization extends, therefore, in the larger Gary schools—and in certain of the smaller ones, for that matter—throughout the grades. This permits an unusual amount of specialization among the elementary teachers. A regular grade teacher seldom teaches more than three of the old line studies and her work rarely ranges over more than two different grades. There are special teachers, for the first three years, in handwork and drawing, and in nature study. All of the sciences, as well as cooking, sewing, freehand and mechanical drawing, and all of the industrial arts have their specialists, with work extending upward from the fourth grade. Finally, there are instructors in music, in expression, and in play and physical training, whose work may and often does range from beginners to the senior high school class.

MOVEMENT OF CLASSES FROM ROOM TO ROOM

When a school is departmentalized, one of two things takes place: Either the pupils go from room to room for their instruction, or the teachers go from room to room to meet their several classes. Where the program is as highly specialized as in the larger Gary schools, and where so many special rooms and so much special equip-

Athletic Field—Froebel School

ment are required, pupils must circulate from instructor to instructor. For play and physical training they go to the gymnasium and playground, for physics, to the physics laboratory, for forge, to the forge shop. Accordingly, all classes in the two larger schools circulate from room to room.

To illustrate: Class 5, primary grade, Emerson, circulated during the spring term 1915–1916 as follows:

8:15	Room 210	Language and numbers
9:15	Room 312	Handwork and nature study
10:15	Gymnasium	Play and physical training
11:15	Home	Luncheon
12:15	Room 312	Handwork and nature study
1:15	Room 210	Language and numbers
2:15	Auditorium	Auditorium
3:15	Gymnasium	Play and physical training

This class occupied during the day four different places (Rooms 210, 312, auditorium, and gymnasium) and changed quarters at the end of each period throughout the day.

Similarly class 40, sixth grade, Froebel:

8:15	Auditorium	Auditorium
9:15	Gymnasium	Play and physical training
10:15	Room 120	Manual training
11:15	Room 120	Manual training
12:15	Home	Luncheon
1:15	Room 302	History and geography
2:15	Room 307	Mathematics
3:15	Room 310	English

This class occupied daily six different places; but two periods in succession were spent in one room (Room 120).

The movement from room to room of these two classes is representative of both Emerson and Froebel.[1] Few classes in these schools occupy less than four rooms daily and occasionally classes go to different rooms every period of the day.

A similar movement of classes takes place in college or in high school, and also commonly in the seventh and eighth grades of the elementary school. But it is a novelty in the primary and intermediate grades, where it is the inevitable result of departmentalization and the policy of keeping all facilities as far as possible in constant use.

Rotation of elementary classes involves complete abandonment of the idea that each class should have a home room where the children spend the greater part of the school day and where they do most, if not all, their school work. It involves also abandonment of the notion that each child should have a seat which he may regard as his own. In the most highly developed Gary schools, the only thing a child may call his own is the locker in which he stores his wraps and his books. What effect this shifting from room to room, this absence of a school home in the old sense and lack of a reserved seat, has on attendance, conduct, and study it is impossible at present to say. Obviously, much will depend on proper arrangements for caring for books and wraps, and

[1] See Tables A and B of the Appendix.

on whether class changes are conducted in an orderly manner.

SEQUENCE IN CLASS PROGRAM

In conventional elementary schools, offering a simple academic program, the teacher proceeds daily with her assigned class from study to study, from exercise to exercise. The order of the day's work for all classes is essentially the same: Opening exercises take place at 9:05; arithmetic comes at 9:20; reading, 9:50; etc. On the theory that children do their hard work best in the morning, the more difficult studies, such as reading and arithmetic, occupy the forenoon, and the less exacting, such as handwriting and music, the afternoon.

In a school having highly departmentalized instruction, the teacher gives successive lessons in the same study or studies; for example, she will give arithmetic to class 5 at 9:15; more advanced instruction in the same subject to class 6 at 10:15; and so on, throughout the day, to different classes. Her work is arranged just as is the work of the Latin or Greek teacher. Consequently, if teachers doing specialized work in special rooms, and with special equipment, are to be kept fully employed, the order of the day's work of the several classes must differ greatly. One class will have to begin the day with academic work and end it with physical training; another class will need to do just the opposite, starting with physical training and finishing with academic work. The programs for the spring term 1915–16 of four Emer-

son classes make the point clear. Their arrangement was as follows:

TABLE V

DIVERSITY OF SEQUENCE IN CLASS PROGRAMS

SCHOOL HOURS	CLASS 4 2D GRADE	CLASS 9 4TH GRADE	CLASS 12 6TH GRADE	CLASS 15 8TH GRADE
8:15	Physical training	Academic work	Auditorium	Special work
9:15	Auditorium	Special work	Physical training	Special work
10:15	Special work	Academic work	Special work	Academic work
11:15	Academic work	Luncheon	Special work	Luncheon
12:15	Luncheon	Academic work	Luncheon	Academic work
1:15	Physical training	Special work	Academic work	Academic work
2:15	Special work	Physical training	Academic work	Physical training
3:15	Academic work	Auditorium	Academic work	Auditorium

The great diversity in sequence is apparent. Class 4 begins the day with physical training, while class 9 begins with academic instruction, probably with reading or arithmetic. All the academic work of class 9 comes before 1:15, while that of class 12 is scheduled from 1:15 to 4:15. As suggested above, this diversity is not a matter of choice—it is an inevitable consequence of an enriched program and the policy of keeping all facilities in use as nearly as possible all the time. Unquestionably the order of work of many Gary classes con-

travenes conventional ideas and practice, particularly in those cases where play and physical training, auditorium, and shop consume the morning hours and where all academic work is placed in the last two or three periods of the long day.

The point under discussion is of serious importance. Is there sound objection to the diversified sequence of studies and activities characteristic of Gary? How does it affect the child's health, habits of work, and actual achievements? Do children who do their intellectual tasks in the morning hours fare better than those who do them in the afternoon? Unfortunately, the question cannot be answered on the basis of assured knowledge. Neither class testing nor observation warrants us in expressing a definite judgment, pro or con.

SIZE OF INSTRUCTION GROUPS

In conventional schools, having the usual academic program, with a single teacher instructing a class, it is difficult to recognize differences in the instructional requirements of the several studies. All classes or instruction groups are of approximately the same size, ranging from thirty-five to forty pupils. To be sure, in the primary grades, a teacher frequently divides a class for reading and number into two and sometimes three separate squads, while in the remainder of the program the class works as a single unit. Likewise in the upper grades, where cooking for girls and manual training for boys are offered, to meet the instructional require-

ments of these activities, both are scheduled for the same period in order that the girls, approximately half of the class, may go to the one while the boys report to the other.

When the school program is enriched or diversified the number of studies is increased and differences in instructional requirements are more clearly brought out. What is best for the academic branches is one thing, what is best for science and the household and industrial arts is another, what is best for the auditorium, for play and physical training, yet another. Departmentalization and rotation of classes, the inseparable complements of an extended and enriched curriculum, make possible the recognition of these differences.

Accordingly there are decided differences in the larger Gary schools as respects the size of the various instruction groups. The average size of academic classes is approximately thirty-six pupils. The upper grade classes in science, in household arts and in the industrial arts are only half as large as the academic instructional groups, and shop classes are frequently even smaller.

On the other hand, auditorium groups are seldom less than three times the size of academic groups and occasionally seven and eight times as large, as can be seen from Table VI.[1]

From the very purpose and nature of the auditorium, the groups can assuredly with safety be made larger than the groups in academic studies. But there is a limit to the number of children, particularly of young

[1]See page 51.

TABLE VI

AUDITORIUM GROUPS AT EMERSON AND FROEBEL
SPRING TERM, 1915–1916

	8:15 TO 9:15	9:15 TO 10:15	10:15 TO 11:15	11:15 TO 12:15	12:15 TO 1:15	1:15 TO 2:15	2:15 TO 3:15	3:15 TO 4:15
			EMERSON					
Number of classes	3	3	5			4	2	4
Number of pupils	101	123	157			125	85	156
Grade span	6A to 8A	1A to 4C	9 to 12			9 to 12	1C to 3B	4A to 8B
			FROEBEL					
Number of classes	7	9	7			5	8	8
Number of pupils	219	276	223			135	293	264
Grade span	4B to 6B	1A to 4C	6B to 11			6A to 10	1B to 3A	3C to 6B

children, whose attention can be held at any one time, and also to the range of grades that a single program can interest and entertain. Insistence on a fair degree of homogeneity in respect to age and maturity of the audience introduces a serious difficulty into program making which the Gary schools cannot be said to have fully solved.[1]

The instruction groups for play and physical training are also large, particularly at the Froebel school. (Table VII.[2])

However, these groups are not so large as they seem. Each group at Emerson has three teachers, exclusive of a supervisor, and each group at Froebel five, exclusive of the swimming master. Even so play and physical training groups are decidedly larger than academic groups. A single teacher can doubtless handle a larger number of children in free play than in academic studies. But, if formal physical training is to be vigorous and exacting and especially if due attention is to be given to the discovery of personal defects and to corrective exercises, the instruction groups should at least at certain times be even smaller than in academic work.[3]

HELPERS AND TEACHERS' ASSISTANTS

Up to this point, we have confined our discussion to those features of organization involved in the extension

[1]For full discussion of this question, as also of auditorium programs and management, see The Gary Public Schools: A General Account, Ch. XIII.

[2]See page 53.

[3]For full discussion of this point, see report on Physical Training and Play.

Jefferson School Building

TABLE VII

PLAY AND PHYSICAL TRAINING GROUPS AT EMERSON AND FROEBEL[1]
SPRING TERM, 1915–1916

	8:15 TO 9:15	9:15 TO 10:15	10:15 TO 11:15	11:15 TO 12:15	12:15 TO 1:15	1:15 TO 2:15	2:15 TO 3:15	3:15 TO 4:15
			EMERSON					
Number of classes	3	4	1	2		3	4	4
Number of pupils	110	136	45	83		120	163	156
Grade span	1A to 10	6 to 10	1C to 1B	3C to 4C		1A to 7A	4A to 9	1C to 7C
			FROEBEL					
Number of classes	12	9	11		2	12	10	18
Number of pupils	375	269	375		69	399	302	553
Grade span	1C to 12	4B to 8A	1B to 5A		3C to 3B	1C to 6C	3C to 9	1C to 12

[1]There are three physical training teachers at Emerson exclusive of a supervisor, and five at Froebel exclusive of the swimming master.

and enrichment of the curriculum. It remains to call attention to two other features of the Gary organization. First, high school pupils often take charge, usually under the direction of a teacher, of elementary school and even of high school classes, and both high school and upper grade pupils assist in the routine work of keeping records, handling supplies, placing work on the blackboard, correcting papers, and coaching individuals or small groups of children. Younger children are also assigned as observers or helpers to classes in which more mature pupils are working. The different grades represented in typical shop classes are shown in Table VIII.

Young children are placed with older children, as observers or helpers, on the theory that the situation thus created duplicates actual life conditions where children learn from observing or helping their parents or older

TABLE VIII

DIFFERENT GRADES IN SAME SHOP CLASS
FORGE—EMERSON SCHOOL
Last 13 Weeks, 1915–16

PERIOD	GRADE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
8:15			4		4		3						11
9:15				3	1		3						7
10:15							6	1					7
11:15						6	5	1					12
12:15													—
1:15									1				1
2:15									1				1
3:15													—

TABLE VIII—*Continued*

SHEET METAL—FROEBEL SCHOOL
Last 10 Weeks, 1915–16

PERIOD	GRADE												TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
8:15					1	2	2		1				6
9:15					2	1	2		3				8
10:15				1								1	2
11:15					4	2						4	10
12:15													—
1:15				2	3				1				6
2:15				4	4			2					10
3:15					3							1	4

persons. They are put in charge of classes or employed as assistants on the theory that there is something in school routine that can be best learned by doing it. These practices are to be viewed with considerable doubt. While turning over classes or even individual pupils to children without experience and special training may be more or less profitable to the pupil acting as teacher, it certainly does not operate to the advantage of the class and undermines standards of professional preparation. As to the value of observers or helpers and assistants to teachers in routine matters, opinions will differ. In our judgment school authorities should hesitate to adopt this feature of the Gary organization until carefully scrutinized experience has demonstrated its worth and limitations.[1]

[1]For fuller discussion of the practice in the shops, see report on Industrial Work, and in cooking, see report on Household Arts.

ELEMENTARY AND HIGH SCHOOL IN ONE ORGANIZATION

The second feature alluded to above is the intimate union of elementary school and high school in the same building under one management. There were at Gary at the time of the survey 547 high school pupils divided between the Emerson and the Froebel schools. Gary has thus in connection with two elementary schools two small high schools offering the traditional academic type of program. In consequence, there is no little duplication of equipment, of teachers, and loss of space. High school classes, almost always smaller than elementary classes, occupy standard elementary classrooms. High school teachers, seldom having full high school schedules, are assigned to elementary school classes. Equipment essential to high school work is either idle, or is made available to young children, even if not used to the best advantage by them. Among the compensating gains are the democratic spirit developed between elementary and high school pupils, the familiarity of elementary pupils with high school opportunities, and the knowledge which high school teachers acquire regarding elementary pupils, their methods of work, and their achievements.

This is the arrangement usually found in small towns where there are not enough high school pupils to warrant a separate plant. Under these limitations, the combination is unavoidable. But where there are ample students, as at Gary, the general practice is to separate the high school from the elementary school. There are

both economic and educational grounds for so doing and it is at least worth considering whether Gary would not gain by establishing a single modern high school with a plant and organization of its own.[1]

SUMMARY

Program, facilities, and organization thus hang together. In the development of the modern elementary school a solution must be found in which they function harmoniously. Gary offers one solution, adopting and freely using the devices above noted—departmentalization, class rotation, diversity of class schedules, and variation in size of instruction groups. In the foregoing pages, an effort has been made to present the resulting situation descriptively. As to the precise effects of these devices upon the pupils, it is impossible to speak at this time. Gary—and in this respect it resembles other school systems—has not yet studied itself. Its products, as reported in the successive parts of this report, are certainly not due entirely to the manner in which the schools are organized. Other factors undoubtedly also play their part—the qualifications and skill of the teachers, the kind of supervision, etc.

The authors of this report believe that the devices characteristic of the Gary organization are highly valuable, but they are at the same time inclined to think that they have probably been pushed too far; e.g., that departmentalization has been somewhat overdone, that

[1]For a fuller discussion of this point, see pages 82–83.

classes move too freely from room to room, that the program sequence of certain classes is more or less injudicious, and that instruction groups are now too small for economy, and now too large for effective teaching. In the long run, however, not opinion, but facts must decide the issues involved, and these facts can unquestionably be procured. For example, we have pointed out that class schedules are now so arranged that one class will play in the early morning and do its work in the early afternoon, while another class—or the same class another term—reverses the arrangement. Now, is there any reason why children should not play in the early hours of the morning and do their classroom work in the early hours of the afternoon? Gary assumes and believes that there is no objection. Is there? No one really knows. The question lends itself, however, to experimental inquiry. Given classes might readily be carried for a series of years alternating the former arrangement with the latter, while other classes are carried with the common order of studies. A series of graphs might show whether the level of class work is affected by the factor here under discussion. Other experiments could be devised for the purpose of determining the question. Of course, the settlement of issues in this way requires time and varied confirmation of results But our point is that, whereas innovation and experiment in organization are urgently needed, they must be held to strict accountability. Reforms are ultimately to be recommended only on the basis of their fruits.

V. USE OF PLANT

IN A preceding chapter we saw how the program of the Gary schools affected the plant and instructional facilities that have to be provided. It now remains to be seen how the program, with the type of organization above described, affects the number of pupils that a given building will accommodate.

In the course of this discussion we shall, for brevity and convenience, employ two terms which it is necessary first of all to explain. We shall speak of the "conventional" or "traditional" type of school, and the "semimodern" type of school. By conventional or traditional school we mean roughly to indicate the type of school that possesses a plant consisting of a given number of classrooms, suitable for academic instruction, a more or less inadequate school yard, and little or nothing else. Its program includes morning exercises, the three R's, geography and history, with music and perhaps a little drawing as incidentals. The classroom is the unit, each teacher carrying the entire program of her class. Most public elementary schools are of this type.

The plant of a semimodern school has regular classrooms, at least a cooking and a manual training room, and an auditorium, if not a gymnasium. In addition, there

may be one or two basement playrooms and more or less spacious grounds. The program includes morning exercises, the three R's, geography and history, music and drawing, cooking and manual training, with some science and physical training. Its organization is also of the classroom type, with the general exception of cooking and manual training, and now and then of subjects like handwriting, drawing, and music. When a class is at work in a special room, in the auditorium, or at play in the basement or on the school grounds, its home room or regular room is usually vacant. Our better elementary schools may be fairly called semimodern in the sense just indicated.

A modern school, if we may revert to Professor Hanus's description, would be distinguished by the reorganization of the common subjects, the variety of additional opportunities, and by a type of organization that takes full advantage of the enriched program and effectively uses the enlarged facilities.[1] The Gary schools, at their best, represent an attempt to advance from the semimodern toward the modern type—with what degree of success will appear from the different volumes of the survey.

The semimodern school differs from the conventional school to the extent that its plant facilities and educa-

[1]The inference should, however, not be drawn from this that a conventional or even a semimodern school can be completely modernized by the mere addition of new studies and activities to its program. This involves also a revaluation of the fundamentals and a thoroughgoing redetermination of their content.

Glen Park School Building and Portables

tional opportunities are more varied; both have the same type of organization. The Gary schools—Froebel and Emerson particularly—differ from the semimodern school partly because the Gary facilities are better, partly because the Gary program is richer, and partly because the organization is more flexible and adequate. For conventional and semimodern schools alike adhere to the classroom type, while Gary utilizes the departmental type described in the preceding chapter. In the present chapter we shall consider the relation between facilities, organization, and enrollment.

PUPIL CAPACITY AND PROGRAM REQUIREMENTS

It is not difficult to get full service out of a conventional plant. The building, consisting mainly of a number of regular classrooms, has its full complement of pupils when a standard sized class is assigned to each room. Even when a school possesses an auditorium, gymnasium, cooking and manual training rooms, these do not always add to the pupil capacity, for, under the conventional organization, when classes occupy special rooms for a period or two daily their regular or home rooms are ordinarily vacant. Hence, it is approximately correct to say that the maximum pupil capacity of a conventional or a semimodern school plant, under the old or classroom type of organization, is equal to the number of standard classrooms multiplied by the number of pupils in a full sized academic class. Assuming this to consist

of forty pupils, a plant of 40 regular classrooms would accommodate a maximum of 1,600 pupils.

Under the new or departmental type of organization, classes, as stated above, do not have home rooms, nor do children have reserved seats. They circulate throughout the day from room to room, sometimes going as a class, sometimes divided into sections, sometimes going as individuals independent of any class organization, while at other times the members of a number of classes are combined into a single instructional group. Hence, an elementary plant under the new type of organization accommodates its maximum number of pupils when every room, whether regular or special, auditorium or gymnasium, is in use every period of the school day, or as nearly thereto as possible. Thus the actual maximum pupil capacity of a given plant, or the maximum use that can be made of it under the departmental type of organization, depends upon the relation between the plant facilities and the requirements of the program followed.

An illustration will make this clear. The Froebel auditorium has a pupil capacity (main floor and balcony combined) of 873, or 20 classes, a total of 120 standard sized classes for a six hour instruction day. But educational considerations impose limitations on the size of auditorium groups. Besides, Froebel's estimated maximum capacity is 60 classes, and the proposed program calls for a single auditorium period for only 48 classes.[1] Therefore, irrespective of what the

[1]See Table G of the Appendix.

physical capacity of the Froebel auditorium may be, as limited by the requirements of the proposed program, its practical maximum capacity is only 48 classes daily. Should further consideration on educational grounds reduce the number of classes using the auditorium, the real capacity of the school would be correspondingly reduced.

This is precisely what occurs under the new type of organization with certain facilities when program requirements change. For example, at Emerson the cabinet and woodturning shops together have a daily capacity, on a six hour pupil instruction day basis, of 240 pupils, but the Emerson program no longer includes these activities. As it is not easy to use these shops for other instructional purposes, they are for the moment idle. In consequence, these two shops under the present program are not a part of the working capacity of Emerson; they simply do not count.

On the other hand, changes in program requirements may operate to augment facilities. For example, the Froebel program of 1915–1916 provided tinsmithing and plumbing. The tin shop, 50 x 24 feet, and the plumbing shop, a standard classroom, had a combined capacity for any one period of not more than 20 pupils, or a total daily capacity, on a six hour pupil instruction day, of 120 children. The Froebel program for 1916–1917 included neither tinsmithing nor plumbing. The tin shop was converted into a kindergarten and primary playroom, with a period capacity of 120 children, and the plumbing shop was restored to regular classroom use.

Thus, by a change in program requirements and consequent change in use, the actual period capacity of the rooms which these two shops occupied was raised from 20 to 160 or increased 700 per cent.

Illustrations might be multiplied showing how actual plant capacity is invariably conditioned by the requirements of the program, but enough have been cited to make two points clear: First, that it is a more difficult administrative task to get full use out of an elementary plant under the departmental than under the conventional type of organization; second, that it is impossible to estimate or determine the capacity of a given elementary plant under the new type of organization except on the basis of the requirements of a particular program.

PUPIL CAPACITY OF EMERSON AND FROEBEL

No single program has ever been followed long enough at either Emerson or Froebel to determine experimentally the respective maximum capacities of these two schools under the new type of organization, nor have other necessary conditions been favorable to such determination. At no time has the number of pupils within reach of Emerson been more than half enough to fill it,[1] and now for the first time are there sufficient pupils to make something like full use of Froebel.[2] It should, however, be borne in mind that in each instance these plants were erected to provide for a rapidly growing population and

[1] Total enrollment, 1915–16, 967.

[2] Total enrollment, 1915–16, 2,087.

not to accommodate a given number of children already at hand.

Of this much we are certain: With a conventional program, and under the traditional classroom organization, they could accommodate 40 classes of 40 pupils, or a total of 1,600 elementary children, and this, too, apart from any use whatsoever of auxiliary rooms, auditorium, or gymnasium.[1]

Under the new type of organization, and with a given program, the maximum capacity of Emerson and of Froebel is officially estimated at 60 classes, or 2,300 pupils, as follows:

6 kindergarten classes of 50 pupils each . . .	300
34 first to sixth grade classes of 40 pupils each . .	1,360
8 seventh and eighth grade classes of 35 pupils each	280
12 high school classes of 30 pupils each	360[2]

If the educational conditions imposed by the proposed program are accepted, for example, kindergarten classes of 50 pupils coming at different hours and having a three period day; all classes above the kindergarten limited to three hours of academic work; daily auditorium exercises of an hour, in groups of eight classes, for all grades above

[1]They each have in effect 30 standard classrooms, 6 unusually large rooms, and 4 rooms for the household and industrial arts, a total of 40 that might be employed for old line instruction. Admittedly, the 4 household and industrial arts rooms are not well suited to general class work, owing to poor lighting and ventilation, yet they are surely equal to many now used for regular work in conventional schools.

[2]See Table G of the Appendix, and Table XXV of the report on Costs.

the first; two hours of play and physical training for all lower grades and at least one for all others; eight classes circulating as observers and helpers; an eight hour plant instruction day, which necessitates a double luncheon period—if these and other educational and social conditions are accepted, it is evident that the Emerson and Froebel schools can, as the schedule shows, accommodate 60 classes, containing 2,300 pupils.[1] But if any one of the above named major conditions is changed, if, for example, kindergarten classes consist of 40 pupils on a five and a half hour day; or if for all classes above the fourth grade four hours of academic work are prescribed; if the auditorium is somewhat more highly systematized, and if helpers and observers are reduced or eliminated—if any one or several of these changes in program are made, the estimated capacity of these plants is altered and in each instance is lowered.

Although the particular schedule above mentioned shows that Froebel and Emerson can on the conditions there given each accommodate 2,300 pupils, it is important to note that 360 of these, or twelve classes, are of high school grade. The question arises: What is the elementary school capacity of these buildings under the new type of organization? Fortunately, in attempting to answer this question, the official estimate is based on number of classes and not directly on number of pupils. The proposed program requirements for high school pupils—three hours of academic

[1]See Table G of the Appendix.

instruction and four of special work—are the same as for elementary pupils.[1] There would therefore be little difference between the accommodations required by twelve high school and by twelve elementary classes. Consequently, Emerson and Froebel could, with the proposed program, each care for sixty elementary classes even more easily than for forty-eight elementary and twelve high school classes. In that event, owing to the difference between elementary and high school instructional needs, less highly specialized equipment would be required. There would also be a decided difference in the grade distribution of the sixty elementary classes. This would probably be for an ordinary elementary school approximately as follows:

6	kindergarten classes of 50 pupils each . . .	300
10	first grade classes of 40 pupils each	400
7	second grade classes of 40 pupils each . . .	280
7	third grade classes of 40 pupils each . . .	280
7	fourth grade classes of 40 pupils each . . .	280
7	fifth grade classes of 40 pupils each	280
6	sixth grade classes of 40 pupils each	240
5	seventh grade classes of 35 pupils each . . .	175
5	eighth grade classes of 35 pupils each . . .	175
	Total	2,410

When the elementary classes are thus kept at the same size as in the official estimate, and are in approximately the same relative proportion each to the

[1]See Table G of the Appendix.

other, it appears that Emerson and Froebel might accommodate 2,410 elementary pupils. But as the classes might easily distribute themselves differently, lowering this number by 100, no violence is done if the elementary school capacity, on the proposed program, of Emerson and Froebel is estimated at 60 classes and 2,300 pupils.[1]

USING ALL FACILITIES ALL THE TIME

Even when the pupil capacity of Emerson and Froebel is estimated at 60 classes and 2,300 pupils, all the facilities of these buildings are not actually in use during the entire plant instruction day of eight hours, or during the entire pupil instruction day of seven hours. For example, at Froebel—and the same would be true of Emerson—the kindergarten and primary playroom, the auditorium, the gymnasiums, the swimming pools, the zoology, botany, physics and chemistry laboratories, the freehand drawing room, the mechanical drawing room, the sewing room, the manual training shop, in short, practically all the special facilities, are idle two hours daily or a fourth of the plant instruction day, and, besides, a few regular classrooms are also vacant one or two periods.[2]

[1]As we proceed with the analysis of this official estimate, it should not be forgotten that we are dealing only with an estimate; the proposed program has never been given in all its details, nor has Emerson or Froebel ever had any such number of pupils.

[2]See Table G of the Appendix.

Beveridge School Buildings

The reason is obvious. Regular or academic rooms can be kept going eight hours a day without requiring any academic teacher to teach more than six hours. There would merely have to be a few more teachers than there are classrooms. In the case of an eight hour plant instruction day, four academic teachers would use three different regular rooms, and in the case of a seven hour plant instruction day, seven teachers would use six rooms. But it is impossible under the new type of organization, or under any other, for that matter, to keep the highly specialized facilities of Emerson and Froebel (such as the botany, zoology, physics and chemistry laboratories, art studios, cooking and manual training rooms) employed more than six hours. Such facilities require specialized teachers, who at most cannot give more than six hours of instruction daily, and as a rule there is only one specialist of each kind in a school plant. When the specialists have done their daily round of hours, specialized facilities, seldom adapted to academic work, lie idle the remaining two hours of an eight hour plant instruction day, as there are no teachers available to use them.[1] Consequently six hours of daily use is probably all that can be gotten out of about a fourth of the facilities of a modern plant, varying with the requirements of the

[1]The Gary authorities have heretofore met this difficulty in part by employing in practical shops workmen instead of teachers. However, in the program under discussion there are no provisions for specialized shop work such as tinsmithing; manual training only is provided; shoe making and plumbing are purely incidental. See Table G of the Appendix.

program. This, however, does not necessarily apply to the gymnasium or to the auditorium, unless the plant instruction day is eight hours; for in a school of size there are a number of physical training teachers and usually more than one auditorium director; besides, these exercises are frequently in the hands of regular teachers. The natural thing, therefore, when operating a school under the departmental type of organization, would be to have a six hour instruction day for both building and pupils. Conditions would then be favorable to keeping all parts of the plant continuously employed, and the school, although under the new type of organization, would approximate the usual hours, beginning at 9 o'clock and continuing until 4 o'clock, with an hour for luncheon.

The particular program to which we referred calls, however, for a seven hour pupil instruction day. To provide this, in the face of the fact that highly specialized facilities can not be used for more than six hours, the plant instruction day is extended to eight hours; two luncheon periods are introduced, half of the children going to luncheon at each period; all special work is scheduled for the first three morning and the last three afternoon hours, leaving all special facilities idle during the two luncheon periods; and, finally, regular classrooms are used eight hours a day, being fully occupied during the two noon hours when only half of the student body is in the building at any one time.[1]

[1]See Table G of the Appendix.

This appears at first thought to be an ingenious arrangement to give pupils a seven hour instruction day, increasing the daily use of ordinary classrooms, without adding to the size of the plant. Analysis of the arrangement dissipates this impression.

In the first place, the pupil instruction day in a school operating under the new type of organization cannot be increased from six to seven hours without additional plant facilities. To illustrate: An instruction day of six hours would probably be divided three hours to academic work and three to special activities. The three hours allotted to special activities would probably be apportioned as follows:

(a) Kindergarten and first grades, two hours to play and one hour to other special activities;

(b) Second to the sixth grades, one hour to physical training, one hour to auditorium, and one hour to other special activities; and

(c) Seventh and eighth grades, a half hour to physical training, a half hour to auditorium, and two hours to other special activities.

Under these program conditions, the building requirements of a 60 class school are: (a) 30 standard classrooms, that is, enough to accommodate half of the school at one time in academic work; and (b) capacity in special facilities equivalent to the capacity of 30 standard classrooms, that is, a capacity in special facilities sufficient to accommodate the other half of the school at one time; or a total capacity equivalent to the capacity of

60 standard classrooms. The special facilities would be apportioned about as follows:

(a) Gymnasium capacity equivalent to 11⅞ standard classrooms;

(b) Auditorium capacity equivalent to 6⅝ standard classrooms; and

(c) Capacity in special facilities other than gymnasium and auditorium, such as nature study rooms, handwork rooms, cooking and manual training rooms, equivalent to 11⅞ standard classrooms.

We are aware, of course, that school facilities cannot be provided in broken units; we however retain the fractions in order to keep the relations mathematically exact for purposes of comparison.[1]

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[1]The mathematics of these building requirements is simple. To accommodate 60 classes three hours daily in academic studies is equal to caring for 180 classes one hour. One standard classroom accommodates 6 classes for one hour daily, therefore to care for 180 classes will require 30 standard classrooms (180÷6).

To accommodate 16 kindergarten and first grade classes (the estimated number in a 60 class school—see page 67,) two hours daily in play, 34 second to sixth grade classes one hour daily in physical training, and 10 seventh and eighth grade classes a half hour daily is equal to 71 class instruction hours; hence, on a six hour building instruction day, would require gymnasium capacity equivalent to 11⅞ standard classrooms (71÷6).

To accommodate 34 second to sixth grade classes (the estimated number in a 60 class school—see page 67) one hour daily in auditorium, and 10 seventh and eighth grade classes a half hour daily, is equal to 39 class instruction hours; hence, would require auditorium capacity equivalent to 6⅝ standard classrooms (39÷6).

To accommodate in special activities other than gymnasium and audi-

It is important to note that "equivalent capacity in special facilities" does not mean the same number of special as of regular rooms. The number of special rooms will probably be less, for, as we have seen, several classes can be assembled at one time in a single auditorium or in a single gymnasium. Nor does it mean an equal amount of floor space. The space requirements of the several studies and activities differ. In some instances it takes more and in others less room to accommodate a standard sized class in a special activity than in an academic study. For example, cooking, manual training, and science, the instruction groups being ordinarily half of a full sized class, call for approximately double the space required by academic work, whereas auditorium requires only about a third as much. In a word, we are dealing with equivalent capacity when a standard sized class is the unit of comparison. Therefore, the above requirements mean that apart from the number of special rooms and amount of floor space thus needed, the special facilities together must be sufficient to accommodate at one time 30 standard sized classes.

On the other hand, when the pupil instruction day is seven hours for all grades, three hours would be allotted

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torium 16 kindergarten and first grade classes one hour daily, 34 second to sixth grade classes one hour daily, and 10 seventh and eighth grade classes two hours daily, is equal to 70 class instruction hours; hence, would require special facilities other than gymnasium and auditorium equivalent to the capacity of 11⅔ standard classrooms (70÷6).

to academic work and four hours to special activities. The time for special activities would be apportioned about as follows:

(a) Kindergarten and first grade, two hours to play and two hours to other special activities;

(b) Second to fourth grades, two hours to physical training, one hour to auditorium, and one hour to other special activities; and

(c) Fifth to eighth grades, one hour to physical training, one hour to auditorium, and two hours to other special activities.

Under these conditions, when the regular classrooms are used eight hours and special facilities six hours daily, the building requirements of a 60 class school are:

(a) $22\frac{1}{2}$ regular rooms ($60 \times 3 \div 8$); and

(b) Special facilities equivalent to the capacity of 40 standard classrooms, or a total capacity equivalent to the capacity of $62\frac{1}{2}$ ($40 + 22\frac{1}{2}$) standard classrooms.[1] The special facilities would be apportioned approximately as follows:

(a) Gymnasium capacity equivalent to $16\frac{1}{8}$ standard classrooms;

(b) Auditorium capacity equivalent to $7\frac{3}{8}$ standard classrooms; and

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[1]It is recognized that the instruction day for kindergarten and the first grade is usually shorter than for the other grades. Even Gary does not contemplate a seven hour instruction day for the kindergarten and first primary, and we hold to a seven hour instruction day for them in order to keep the comparison exact.

(c) Capacity in special facilities, other than gymnasium and auditorium, equivalent to 16⅔ standard classrooms.

The change from a six to a seven hour pupil instruction day in a school under the departmental type of organization, even though regular rooms are employed eight hours a day, requires, it will be noted, a net increase in plant facilities equivalent to the capacity of 2½ classrooms, or an increase of 4 per cent. But this may not be the most important difference. The number of regular rooms is reduced from 30 to 22½ and the special facilities are increased from the equivalent of 30 to the equivalent of 40 standard classrooms. This alters radically the character of the facilities to be provided and the interior structure of the plant, and raises the question of the relative cost of an equal capacity in regular and special rooms. Let this be as it may, it suffices for the present to note that, even in a plant operating under the new type of organization, lengthening the pupil instruction day from six to seven hours cannot be accomplished by a mere administrative arrangement which permits the use of regular rooms eight hours a day; to do it requires additional building facilities.

In the second place, the double luncheon period, the center of this administrative arrangement, is open to question. It brings the school into direct conflict with domestic arrangements and habits, as it interrupts and makes irregular the midday meal in families with children, who, belonging to different classes, go home to

luncheon at different hours. It is undesirable so to organize the school that it interferes unduly, as does the double luncheon period, with the convenience of the family; in our opinion such an arrangement can hardly be acceptable to the home, whatever school economies may be achieved thereby. Let us consider what these economies amount to.

Any use of regular rooms in excess of seven hours when the pupil instruction day is seven hours would seem to be a clear economic gain. But the use of regular rooms eight hours, when special facilities can only be employed six,[1] increases the proportion of special to regular rooms. For example, under the above program conditions, special facilities used six hours must be provided in sufficient quantity to care during four hours daily for all the classes that regular rooms used eight hours can accommodate three hours a day. Obviously, the greater the proportion of special facilities to regular rooms, the greater the proportion of the entire school plant idle after six hours of service. For this reason, when the pupil instruction day is seven hours, the net gain from an eight hour use of regular rooms and the double luncheon period comes to nothing.

[1]See pages 68–70. Moreover, it should be kept in mind that in order to use regular rooms eight hours a day it is necessary to schedule all special work the first three hours of the morning and the last three hours of the afternoon, thus leaving all special facilities idle the two midday periods. Otherwise, with half of the school at luncheon each of these periods, there would not be pupils available to fill the regular rooms. See Table G of the Appendix.

Gymnasium—Beveridge School. Two portables joined end on end

To illustrate: Under the above program conditions (page 73), when the pupil instruction day and the day for regular rooms are seven hours, the building requirements[1] of a 60 class school are:

(a) $25\frac{4}{7}$ regular rooms; and

(b) Special facilities equal to the capacity of $36\frac{9}{14}$ ordinary rooms, or a total capacity equivalent to $62\frac{5}{14}$ standard classrooms. The special facilities would be apportioned about as follows:

(a) Gymnasium capacity equivalent to $13\frac{4}{7}$ standard classrooms;

(b) Auditorium capacity equivalent to $6\frac{3}{7}$ standard classrooms; and

(c) Capacity in special facilities, other than gymnasium and auditorium, equivalent to $16\frac{1}{2}$ standard classrooms.[2]

Therefore, when, in a school operating under the new

[1]For method of computation, see note page 72. It should, however, be observed that when the plant instruction day is seven hours, gymnasium and auditorium may be used seven hours daily.

[2]To accommodate 16 kindergarten and first grade classes in other than gymnasium and auditorium two hours daily; 21 second to fourth grade classes one hour; and 23 fifth to eighth grade classes two hours, is equal to 99 class instruction hours. Hence, there will be required a capacity in special facilities other than gymnasium and auditorium equivalent to the capacity of $14\frac{1}{7}$ standard classrooms (99÷7). But such facilities cannot ordinarily be used in excess of six hours. Therefore, that there may be available each hour of the seven hour school day a capacity in special facilities other than auditorium and gymnasium equal to $14\frac{1}{7}$ standard classrooms, there must be provided a capacity equivalent to $16\frac{1}{2}$ standard classrooms, thus allowing for $\frac{1}{7}$ of such facilities being idle all the time.

type of organization and having a seven hour pupil instruction day, regular rooms are used seven instead of eight hours a day, the requirements of a 60 class school under given program conditions are reduced from a total capacity[1] equivalent to $62\frac{1}{2}$ to a capacity equivalent to $62\frac{5}{14}$ standard classrooms.[2] The reduction is probably even greater, for the double luncheon period and the eight hour use of ordinary rooms permit no use of special facilities for other purposes, as they are fully occupied six hours of the day and are ordinarily not needed during the two noon hours. In contrast, when regular rooms are in use seven hours, it is possible to make occasional use throughout the school day of some of the vacant special facilities for regular instruction, and this might easily add further to the economic advantage of the single luncheon period and seven hour day. Where different kinds of facilities are not available in proper proportion each to the other, the double luncheon period and eight hour use of regular rooms may be tolerated as a temporary makeshift, but it cannot be defended on the basis of either economy or more intensive use of plant; it is, moreover, not an essential feature of the departmental organization.

But even the departmental organization of a school, on the basis of a seven hour pupil instruction day and a seven hour daily use of regular rooms, does not provide

[1]See page 74.

[2]These mathematical relations hold approximately for schools of all sizes large enough to accommodate an extended program.

for continuous employment of all facilities. One seventh of all special facilities, other than auditorium and gymnasium, which constitute more than a fourth of the entire plant, will be idle practically all the time.[1] There are, besides, certain other facilities, particularly outside equipment, that will be unused from a half to two thirds of the entire school year. For example, when from time to time children are at work in the school gardens, nature study rooms and botany laboratories are likely to be empty; when children are on the playgrounds, gymnasiums and swimming pools are likely to be unoccupied, and *vice versa*. When special auditorium exercises take place outside the regular auditorium period, regular rooms are vacant, and so on.

Obviously, the new type of organization, when the school day is in excess of six hours, is not capable of keeping all school facilities in full use every hour of the school day. Undoubtedly, it possesses advantages over the old type of organization in semimodern plants, for in such plants, under the old organization, there is inevitable waste in connection with regular classrooms, and all special facilities, such as auditorium, gymnasium, cooking and manual training rooms. But whatever the length of the school day, there is a certain amount of waste even under the new type of organization, from failure to use the plant uninterruptedly, because the different kinds of facilities are not provided in proper proportion to one another, or because of peculiarities in

[1]See note, page 77.

the proposed program, or unusual makeup and grade distribution of the classes. The economic loss will certainly be greater in a school so organized than in a conventional school, and might even prove not less than in a semimodern school operating under the classroom type of organization, unless a high type of administrative talent is employed. Even then it is doubtful whether a plant so operated can be utilized ordinarily at more than 95 per cent. of its maximum capacity, if the experience of a well administered high school similarly organized is any criterion. The situation may therefore be summarized as follows: A school plant with modern features cannot possibly be utilized up to 100 per cent. of its actual physical capacity. Under the new type of organization it can, however, be used more steadily and effectually than under the conventional organization, but these possibilities cannot be realized without unusual administrative skill.

UTILIZING OUTSIDE FACILITIES

It is interesting to note in this connection that the new type of organization permits the use of outside facilities. In some of the schools of Gary pupils leave the building at fixed intervals for religious or library instruction and even for physical training. For example, at Jefferson they go to the public library, and to the Y. M. C. A. for physical training and competitive games. If it is regarded as desirable to place school children in other institutions for a part of the school day and thus to

take advantage of the resources of other child welfare agencies, it becomes possible to increase the number of children the schools can care for. At Gary, however, these outside activities are almost always scheduled for the period or periods when the children would otherwise be in the gymnasium or at play; consequently, with the possible exception of Jefferson, this outside work has not affected the number of pupils the several buildings have been able to accommodate.

GRADE GROUPINGS AND SIZE OF PLANT

The foregoing considerations raise to new prominence the questions: What are the proper divisions or grade groupings in a system of free public schools and what is the most desirable size of an elementary school plant? These questions are of great practical importance, because elementary schools can not ordinarily have enough seventh and eighth grade pupils to keep in constant use the special facilities required by an extended and diversified program.

To illustrate: A seventh grade program may offer a half year in botany and a half year in zoology, and an eighth grade program similar periods in physics and chemistry. If highly specialized facilities are furnished, as at Froebel and Emerson, and the instruction groups are half of a standard sized class, six seventh and six eighth grade classes are needed to keep them going continuously. If, on the other hand, there are combination laboratories, one for botany and zoology, and one for physics and chemistry,

three full sized classes will be needed in each of these grades. Similarly, a program may provide at least a year's work in cooking for girls. This may be distributed, half to the seventh and half to the eighth grade, or all to the eighth grade. In either case, to keep a single cooking room and teacher engaged six hours a day, when the instruction groups are half of a standard sized class, requires the girls from six full sized classes. The problem appears in its acute form when opportunity is offered such pupils to participate in a variety of specialized industrial activities. For example, the Emerson school in 1915–16 provided forge and foundry as well as cabinet and woodturning shops. These arts appeal primarily to boys who make up less than half of all upper grade classes. Therefore, as each shop can accommodate six half classes a day, to keep these four shops employed, provided all boys take industrial work a period a day throughout the seventh and eighth years, would require not less than 12 seventh and 12 eighth grade classes. There are, however, only 7 seventh grade and 5 eighth grade classes in all the schools of Gary, which points to the economic impossibility of offering too much variety in specialized industrial opportunities in an ordinary elementary school.

Gary has attempted to solve the problem by combining elementary and high schools, and by using the same specialized facilities for the instruction of upper grade, even lower grade, and high school pupils. There is obviously a sharp limit to the number of high schools

that can be established in conjunction with elementary schools, for no city can possibly need as many high schools as elementary schools. Moreover, the specialized facilities required by an up-to-date high school are different from those required by seventh and eighth grade instruction and are as far above the needs of the seventh and eighth grades as the facilities they require are different from and above the needs of the intermediate and primary grades. The most general special facilities, such as handwork and drawing rooms, and nature study rooms, suffice for grades one to six, and it is only the high school that requires highly specialized equipment such as separate art studios and separate science laboratories. Therefore, to be compelled to use with intermediate and primary pupils facilities appropriate to the seventh and eighth grades, or to use high school equipment with seventh and eighth year pupils, inevitably involves a certain amount of waste.

The first step toward the solution of the problem will compel, we believe, a new grade grouping within the public schools. The junior high school movement has already pretty clearly indicated the nature of the realignment needed, and it should occasion no surprise that the requirements of the junior high school, itself an attempt to modernize the seventh and eighth grades, should coincide with the requirements of an expanding program for all grades. The arrangement most favorable to the development of modern programs and to the full use of all facilities each hour of the school day is, we believe,

approximately as follows: elementary school, grades one to six; junior high school, grades seven to nine; and senior high school, grades ten to twelve; that is, the six-three-three plan of organization. In large cities, there would be separate buildings for the junior and for the senior high schools. In cities the size of Gary, the junior and the senior high schools might well occupy the same building, while in small cities, a single building would suffice for all three schools.

The second step involves the erection of plants designed to operate specific programs and to accommodate a given number of classes. A conventional program can be given about as well in a twelve room plant as in a twenty-four or a forty-eight room building. Economically, there is little to choose. In fact, aside from the distance children must go, there are only two questions of importance to consider: How large can a plant be without depriving the principal of that intimate knowledge and contact essential to the achievement of satisfactory results, and how small can a plant be without interfering with proper pupil grading? On these questions opinions and practices differ widely.

An extended and diversified program alters entirely the situation. To operate it at all the rooms must be of different kinds and to do this economically these must be in proper proportion to one another. Here is then a real criterion. The working size of a building can not be increased merely by adding a number of regular rooms. Due respect for economy forbids that gymnasium or

Group of Portables—Ambridge School

auditorium or shops have a daily capacity of forty classes, while other facilities provide for only half as many. To be sure, the number of children to be housed, their convenience and best interests determine the number of plants to be erected; but the number of classes to be accommodated in any given building, or its size, as well as the character of and relations between its facilities, must be determined by the requirements of the program to be followed. Hence, the starting point as well as the final basis of decision in the erection of a new plant is the program to be offered. This involves deciding by grades on the regular studies and special activities to be included; on the length of the school day, on the division of the school day among the different kinds of work, on the allotment of time to each of the special activities, and on the extent to which the proposed special activities require general or highly specialized facilities, on the length to which departmentalization is to be carried, and on the size of the instructional groups. When plants are thus built around a given program and plan of organization, it will be necessary, we believe, in order to provide at a minimum cost a broad, varied, and rich course of study, to make schools larger than is common at present; but they will not necessarily need to be so large as the Emerson and Froebel schools.

While the larger plant provides the more favorable conditions, the new type of organization may be employed in schools of almost any size, as the experience of Gary shows. For example, at the Clarke school, which has

only two rooms, each teacher is responsible for a room and yet the teachers as well as the children circulate freely. They come together for general or auditorium exercises now in one room and now in the other. One teacher takes most of the arithmetic, history, and physiology; the other, most of the reading and geography, and so on, according to the special interest, preparation, and skill of the two teachers. The 24th Avenue school has seven teachers, with classes ranging from the kindergarten to the second grade. Here one teacher has the play and physical training, and another, the literature, music, nature study, and gardening. The Glen Park school, with eight teachers and all grades, shows a further division of work. One teacher does the play and physical training, another has charge of the auditorium, music, and expression, and there is also a separate teacher for manual training, handwork, and mechanical drawing, and for cooking, nature study, and gardening. At Beveridge, a school with fourteen teachers, departmentalization is still more complete. Manual training, cooking, handwork and drawing, nature study, music and auditorium, and play and physical training each have special teachers.[1]

LENGTH OF THE SCHOOL DAY

Finally, it is desirable to call attention to the fact that the new type of organization is not bound up with a seven hour instruction day. With the new type of organiza-

[1]See Table C of the Appendix.

tion, as with the old, the school day may be of any desired length. To be sure, an extended and diversified program requires more time than a narrow, conventional program; but not necessarily seven hours. For example, by the simple expedient of eliminating the auditorium the Gary program could be reduced to six hours. For certain congested and foreign sections of Gary there are convincing reasons why the instruction day should be seven hours. But under other living and social conditions there may be objections to a school day in excess of six hours.

SUMMARY

To summarize: The number of pupils a plant will accommodate under the new or departmental type of organization is determined by the requirements of the program followed and will vary with these requirements.

With a rich and varied program, the pupil capacity of a modern plant will be greater under the new type of organization than under the classroom type of organization, as it permits the maximum use of both regular and special teachers and of all facilities.

Special facilities cannot ordinarily be kept in use more than six hours a day whatever the type of organization, but the loss in a modern plant under the new type of organization, when the program is rich and varied, will never be as great as it would be under the old type of organization.

Conditions are most favorable under the new type of organization when the instruction day is six hours, when

the grade groupings are on the six-three-three plan, and when plants are erected in view of the requirements of particular programs and for the accommodation of a given number of classes.

While a large plant offers the most favorable field of operation, the new type of organization may be employed within limits in a school of any size having more than one teacher.

VI. SUPERVISION AND ADMINISTRATION

THE results achieved at Gary in respect both to education and cost depend no less than in other systems upon the effectiveness of the administration and supervision.

SUPERVISION

The administrative and supervisory staff of the Gary schools consists of a superintendent, an assistant superintendent (who is also director of night schools and supervisor of the upper grades of elementary day schools), an assistant superintendent in charge of kindergarten and primary grades, a supervisor of handwriting, of physical education, and of the industrial arts, certain heads of high school departments theoretically responsible for the supervision of their subjects throughout the system, and school principals.[1] With the exception of heads of departments and school principals, these officers are charged with the responsibilities commonly associated with their respective titles and positions.

[1]A teacher at Froebel who gave a considerable amount of his time to advising and assigning pupils to industrial work is not included in this enumeration.

GENERAL SUPERVISION

The superintendent of schools and his two chief assistants may be characterized as general supervisors, since their control is exercised not over a particular subject or a particular school, but over the entire system. It is not easy to describe their activities, nor is it easy to evaluate their work. The theory of supervision, which accords with the practice observed, can be best expressed by saying that the general supervisory staff develops a plan of organization, making suggestions and outlining ideals to be attained, and then leaves the other members of the school staff to realize these aims in their own way.

The superintendent participates in the actual organization of certain phases of the work, such, for example, as transition classes between the kindergarten and first grade, and all school programs are submitted to him for review and approval. Three or four times a year he holds general teachers' meetings on Saturday afternoons for the discussion of policies and methods of procedure, but routine matters occupy a conspicuous place at such gatherings. Occasionally, he announces special meetings, but these are, as a rule, given over to topics of particular interest to the teachers themselves, such as the length of the instruction day and salary schedules. Informal conferences are held at long intervals with supervisors, principals, and heads of departments, and now and then a teacher calls at the office, but seldom for any other purpose than to adjust some personal matter. From time to

time, questions of repairs, rearrangement of classrooms, additions to buildings, and improvements to grounds, take the superintendent into the schools for an hour or two at a time, and occasionally he observes classroom work.

Similarly, the two assistant superintendents hold meetings with the particular teachers under their direction, the one supervising the upper and the other the kindergarten and primary grades. The schools are dismissed an hour earlier to permit teachers to attend. General problems of interest to the particular grades receive some attention, but the time is mostly consumed with details of instruction and routine in management. The assistant superintendents also visit classes, observe the instruction, advise with the teachers, and finally grade them, as is required by the Indiana law. They assemble reports on children's work, determine whether or not they shall be promoted, oversee the makeup of their daily schedules, and advise in the organization of classes. In fact, the assistant superintendent of the kindergarten and primary grades gives a good part of her time to studying individual needs and to seeing that children are properly classified. Nevertheless, on the whole, there is too little supervisory effort to organize the practices—many of them recent—for the achievement of the proposed aims of the Gary schools, too little close supervision to see whether the classroom work makes good the theories and aims adopted, and too little central endeavor to determine the quality of the pupils' performances. In a word, the general supervision is inadequate in amount and ineffective in its results.

There is no good reason why this should be so. Three general supervisors, with the assistance of three special supervisors,[1] should be able to give unity of purpose and consistency of effort to a system having less than 150 teachers and less than 6,000 pupils. Nor is it because the outlay for supervision is meager. The combined salaries for 1915–1916 of the general supervisors, chargeable to the regular day schools, amounted to $8,925, and of the three special supervisors, to $3,650, a total of $12,575.[2] In truth, the situation raises an interesting question: What are the possibilities, what should be the practice, and what should be the character of supervision in a school or school system experimenting with program and organization? It is impossible to answer these questions offhand. It is, however, apparent that the more complicated and novel the system, the greater the need of central direction, the greater the need of unity of policy, and the closer the scrutiny with which results should be observed. Schools like Emerson and Froebel are more complex both in program and in organization than the conventional school, and hence there is every reason to believe that they require rather more

[1] To be exact, there are two and one third general supervisors, counting the superintendent, as one assistant superintendent gives only one third of his time to the day schools. On the other hand, the teacher at Froebel mentioned in the footnote on page 89 is not included among the special supervisors. It is to be noted also that the industrial supervisor has charge of repairs, but as this repair work is supposed to be educational, we consider his entire time as being given to supervision.

[2] See Tables III and IV of report on Costs.

Playground—24th Avenue School

than less the customary amount of administrative and supervisory direction and control, always provided, be it understood, that it is supervision of the right kind.

Obviously, there is a real danger of the wrong kind of supervision in a school that is attempting tasks requiring new and resourceful adjustments, as would be the case if the supervisors should lack sympathy with the extension and enrichment of the curriculum and the type of organization needed for these purposes. The success of a more or less novel educational enterprise depends on vision, initiative, and a certain freedom. But freedom is not license. Genuine experimentation is exacting. While, therefore, the supervision required in a school system which is itself to a degree experimental differs from that needed in schools working in conventional ways for conventional results, there is certainly the very greatest need in the former of supervisors of deep insight and liberal sympathies, who will assist teachers to appreciate the ideals back of modern education as well as to grasp clearly the specific aims which they are to realize, who will direct them in developing instructional materials and teaching methods appropriate to the realization of their aims, and assist them in measuring and evaluating the products of their classroom work by the sound and inevitable standards of practical life.

THE SCHOOL PRINCIPAL

The Gary school principal has little to do with the educational side of his school. He organizes it in con-

sultation with the superintendent and assistant superintendents, looks after the building and grounds, meets parents, handles special attendance and discipline cases, orders books and supplies, collects reports from teachers, hires and supervises the janitorial force, and makes reports to the superintendent; he also arranges the programs of teachers and supplies substitutes, holds weekly teachers' meetings after school hours to consider questions of discipline, attendance, and school management, and occasionally visits classes, but he has no responsibility for the quality of the teaching. Records of enrollment, of promotion, and of scholarship come to his office, but the responsibility for what pupils do and for their promotion belongs to the teachers and general supervisors. In short, the principal is an administrative officer. Our observations and our investigations of the quality of the instruction indicate the need of a more detailed and intimate type of educational control, such as the best school principals of other systems exercise. The principal at Gary should undoubtedly be the head of his school, even if the business management has to be delegated. For general supervisors who go from school to school are rarely intimate enough with the needs and abilities of particular children to advise wisely as to their programs or their promotion, nor do they, as a rule, know individual teachers well enough to be able to offer the helpful criticism and suggestions which make for the highest degree of efficiency in a teaching corps.

SUPERVISORS OF SPECIAL SUBJECTS

Special supervisors have to do with given branches of instruction only; the handwriting supervisor, for example, with handwriting. This particular special supervisor at Gary corresponds, however, more nearly to what is known in other systems as a special teacher. He goes from building to building and from room to room actually teaching classes, particularly of the upper grades; he counsels teachers, gives suggestions, and at long intervals brings them together for conference.

The supervisor of physical training[1]—the latest addition to the supervisory staff—works in much the same way. Through observing teachers at work, personal interviews, printed directions, occasional conferences with groups, and now and then a place on the program of a general meeting, he keeps in touch with the play and physical training instructors in the larger plants and even gives some direction to the work undertaken in the small schools by teachers who have had little or no special training. Under his oversight, considerable has already been accomplished in organized play, in interscholastic athletics, and other recreational activities.

The supervisor of the household and industrial arts

[1]The exact status of this supervisor is an open question. Officially he is ranked as a teacher. We rank him as a special supervisor, because he has no class assignments on the school program, and because he gave all his time to supervision during the period of our study of physical training.

superintends also the repair work of the entire system and oversees some new construction. During the period of the field work of the survey, repairs, together with moving pictures, consumed most of his energies, and there is little reason to believe that he ever has much time for his strictly supervisory duties. To be sure, he is in and out of the several shops and even cooking and sewing rooms almost daily; he knows precisely what engages each shop and is thus able to give a certain unity and direction to the work. He also meets with the shopmen two or three times a year for an evening's discussion of their particular educational problems, but at most, there is little direct educational supervision of the practical work for boys and even less of that for girls.

The heads of high school departments, particularly those at the Emerson school, feel a certain responsibility for the teaching of their subjects in all grades and throughout the system. There is, however, no evidence that this mode of supervision is more than a theory. The head of the English department at Emerson and the physics teacher in the same school are, to be sure, keenly interested and have some influence in their respective fields, but teachers work, for the most part, independently of such control.

ADMINISTRATION

Superintendents and school principals handling the new type of elementary organization have to deal with practically the same administrative problems as admin-

istrators of conventional systems, but a number of these problems have taken on new and more complex forms, which make the administration of such an elementary school comparable in difficulty with the administration of a modern high school.

Among these problems are the storage of children's wraps and instructional supplies, the equipment of rooms occupied by children of different grades and ages, discipline growing out of the frequent passage of classes from room to room, types of records and reports needed when children are not under the control of one teacher, and finally program making.

STORAGE FACILITIES

Storage space for the books and wraps of children is provided at Gary by means of lockers installed in the hallways and in some of the shops. Attractive cupboards hold the textbooks and materials used in academic instruction, and such supplies as the special activities require are kept in the special rooms. As far as possible, children are assigned lockers on the same floor and near the rooms where they will be the last period before luncheon and the last period in the afternoon.

SCHOOL FURNITURE

A somewhat more difficult task is that of providing furniture of suitable size, when classes with children of different ages and grades use the same room. This problem has not been successfully solved at Gary. Very

often the feet of children seated at desks or on chairs do not reach the floor.[1] Special rooms are equipped with furniture of one size only, and, although there are usually desks of two or three different sizes in regular rooms, sufficient care is not exercised to schedule classes so as to use to the best advantage equipment of the sizes provided. The difficulty is by no means insurmountable, at least in fairly large schools. Rooms can be properly furnished and devoted to a single grade group; for example a single regular room can be used by second grade classes for academic work the whole day. A large school, providing the more general equipment for the household and industrial arts, as the Passaic school mentioned above, will need more than one special room for this work. Hence, equipment can be varied so that the children of the first two grades will use one set, the third and fourth another set, and the fifth and sixth still another set. Similarly, special rooms for the seventh and eighth grades can easily be supplied with chairs or stools of two or three different sizes.

SCHOOL DISCIPLINE

Under the new type of organization, practically the whole school appears in the corridors at the same time and goes from one part of the building to another not less than four times a day. For the sake of promptness and order all classes should move at the same moment. Other devices may be employed, but for satisfactory results a

[1] See illustration opposite page 100.

pneumatic clock and a full set of electric signals are essential. This corridor life gives rise to new problems in conduct and in discipline. In certain of the Gary schools, the corridor discipline, though varying, is not everywhere or always satisfactory; but this is a local matter depending on the principal. No unprecedented or novel difficulty is presented, except perhaps the extension to elementary pupils of a type of self control already common with older pupils. An easy, natural, but self controlled mode of deportment is desirable. Gary indeed aims to secure just this and often does, but supervision is in some places perhaps somewhat too lax.

RECORDS AND REPORTS

The departmentalized elementary school, even more than the conventional school, requires an adequate system of records and reports. Not the least difficult of these to devise and to keep is the record of attendance. At the time of the survey, the Gary procedure in recording attendance and absence was as follows: At the beginning of the term, each pupil takes his daily program card to the proper class teacher, who initials the card for the particular period for which the pupil is registered with him, and enters the pupil's name on his class roll. At each class meeting, the teacher calls the roll and a pupil selected for the purpose writes on an absence slip the names of all pupils not present, designating the room and period. These absence slips are collected at the last hour of the day and taken in charge next morning by the

"clearing house," a group of pupils who, under the direction of a teacher, make up the attendance record of the school for the preceding day, copy on a separate slip the names of all pupils absent belonging to each register teacher, and deposit these with the proper teachers. Other pupils, serving as helpers, usually transfer these reports for the register teacher to the permanent attendance records of the particular group for which the given register teacher is responsible; children not reported absent are marked present.

Children may well profit by such responsibility and by engaging in such work, but the records kept in this way are strikingly incomplete, as evidenced by Table IX,[1] which shows for each period of a given day for both Emerson and Froebel schools the number of pupils scheduled, the number of pupils actually present and accounted for, and the number not accounted for. Thus, at the Emerson school as many as 34 pupils are unaccounted for during one period, and at Froebel the number varies at given periods from a few to several hundred.

The discrepancy between the number of children scheduled for a particular period and the number present by actual count, when allowance is made for those reported absent and excused, can only be explained on the basis of failure to keep complete records, if not to control attendance. The discrepancy at Emerson is small and yet sufficiently large to indicate laxity. At Froebel, the conditions approach demoralization.

[1]See page 101.

Expression Room—Emerson School

TABLE IX

NUMBER OF PUPILS NOT PROPERLY ACCOUNTED FOR EACH PERIOD OF JUNE 12, 1916[1]

EMERSON

	PERODS							
	8:15	9:15	10:15	11:15	12:15	1:15	2:15	3:15
Number Scheduled	680	680	680	399	266	663	663	637
Number Actually Present, Excused or Reported Absent	677	681	658	365	233[2]	641	660	256[3]
Number not Accounted For	3	+1	22	34	33	22	3	

FROEBEL

Number Scheduled	1,470	1,518	1,518	670	840	1,517	1,517	1,429
Number Actually Present, Excused or Reported Absent	1,214	1,436	1,305	770	947	1,292	1,261	875
Number not Accounted For	256	82	213	+100	+107	225	256	554

[1]The day was fair and warm and an actual count was made of the pupils present.

[2]For all other periods, the number given includes pupils found anywhere about the plant; the number for the particular period does not include pupils in or about the playgrounds, shops, library, "zoo," auditorium, and the like.

[3]Five classes were dismissed in order that the teachers might be free for register work.

PROGRAM MAKING

In a conventional school, program making is a simple matter. The program for each class of a given grade is practically fixed by the course of study; it remains for the class teacher to arrange the order of daily exercises so that there is a proper balance between the easy and the difficult. Under the departmental type of organization, program making is peculiarly the work of the principal and presents at once great opportunities and great difficulties. Upon the skill exercised in devising and dovetailing the several class schedules depends the use made of the plant and its facilities. Further, there are great educational possibilities in adapting the work of the school to particular class and individual needs. Class and individual differences may within limits be taken into account; the hours of some specially needed type of work may be increased, and opportunity may be given for double promotion or for specialization. The extent to which classes and individuals may be put where they can work to the best advantage depends, of course, on the breadth of the program, the building facilities, and the number of classes in each grade and subject.

To take full advantage of an extended and diversified program in a departmentalized school it is necessary for the principal to have in his office for guidance a carefully kept cumulative record card showing each pupil's attendance, scholarship, and previous work in every regular and special subject. Gary provides such a

form in the possession of the register teacher, but the record is poorly kept. It is also necessary for the principal in making up the pupil's program for a given year and grade to have in mind the child's entire school career.

Gary does not realize the possibilities of its program, as the study of a single Froebel class (No. 44, 7A) illustrates. This class contained many weak pupils in unquestionable need of individual consideration and attention. Its official spring program was as follows:

8:15 Gymnasium (play) or library
9:15 Music
10:15 Arithmetic
11:15 English
12:15 Luncheon
1:15 Auditorium
2:15 Shop (boys); Cooking or sewing (girls)
3:15 United States history[1]

In a conventional system each of the 31 pupils of the class would take the above studies at the designated period. At Gary the entire 31 pupils recited together in a single class—arithmetic—at the scheduled time. (Table X.[2]) Only two other subjects—gymnasium and English—claimed all members, but in neither of these branches were they all in the same class. Twenty-three took no music, seven no history, and four no auditorium. These variations might well represent real educational

[1]The class at this period was first scheduled for expression but the work was changed to United States history.

[2]See page 104.

TABLE X

DISTRIBUTION OF CLASS 44 (7A) BY STUDIES AND PERIODS

PERIODS	STUDIES										TOTAL
	GYMNASIUM OR LIBRARY	MUSIC	ARITHMETIC	ENGLISH	LUNCH	AUDITORIUM	SHOP	COOKING OR SEWING	DRAWING	HISTORY	HOME	
8:15	27	7	1				2	1	2	2	1	31
9:15	13		31					6				31
10:15				30	1							31
11:15				1	30							31
12:15				2								31
1:15	1					27	7	9	5	1	1	31
2:15	8	1					3		2	21	5	31
3:15												
Total	49	8	32	33	1	27	12	16	9	24	7	

gains. However, as we point out in the next paragraph, they are not adjustments to serve the interests of particular pupils or to secure their regular advancement, but merely chance arrangements, the product of loose administration and supervision.

The most surprising variations occur in the 9:15 and 2:15 periods. At 9:15 the class is scheduled for music. At that time thirteen went to the gymnasium, seven had music, one arithmetic, two shop, six cooking or sewing, and two drawing. At 2:15 boys are supposed to be in shop and girls in cooking or sewing. Actually, eight went to gymnasium or library, one to music, seven to shop, nine to cooking or sewing, five to drawing, and one to history. Again, the official program calls for only one period a day in each of the several studies; and yet fourteen pupils took two hours of gymnasium or library and two took three hours. Twelve pupils did double and one treble duty in practical work. (Table XI[1].) All told, there were thus not less than fifty-four deviations from the official class program, but only three were to afford additional academic instruction—one in arithmetic and two in English.

All persons concerned—teachers, principal, and children—were questioned about these changes. The principal, whose written endorsement is required, had no recollection of the reasons for them and no record of them. Although the pupil's Program Card reads, "No dropping of class nor change of program will be permitted

[1]See page 106.

without the written consent of the assistant superintendent," the children had not consulted this official. A teacher employed to advise with children about their practical work knew nothing about these departures. Register teachers,[1] supposed to have on file for each change "Permission to Change Class" slips, had barely a half dozen of them—not one completely executed—and were, therefore, almost wholly unaware of what had happened. The fact is, that in a few instances, the regular teachers, on their own authority, excused pupils from their classes, but in most instances children dropped what they did not want and elected what they wanted, provided they could get it, without consulting anybody. Prolonged

TABLE XI

DISTRIBUTION OF CLASS 44 (7A) BY THE STUDIES TAKEN AND THE HOURS PURSUED

SUBJECT	NUMBER OF PUPILS NOT TAKING	NUMBER OF PUPILS TAKING		
		ONE HOUR	TWO HOURS	THREE HOURS
Gymnasium or Library		15	14	2
Music	23	8		
Arithmetic		30	1	
English		29	2	
History	7	24		
Auditorium	4	27		
Practical Work:	8	(10)	(12)	(1)
Shop		3	3	1
Sewing or Cooking		5	6	
Drawing		2	3	

[1]There were seventeen register teachers keeping the records of this one class.

inquiry showed clearly that with five or six exceptions all these changes were the result of childish caprice exercised without restraint.

Nor does class 44 stand alone. Out of eleven additional Froebel and Emerson classes similarly tabulated, in six there was not a single pupil taking double work in any of the regular studies, and in the remaining five classes, not more than a single pupil in any one of them. In no class were there as many deviations from the official program in special work as in class 44. Still, such deviations as there were, were rarely educational adjustments; they were due mostly to the child's own choice, to the organization of the school at the time, and to the special facilities available. Nevertheless, the flexible class program might easily be made a material factor in the development and regular advancement of pupils, in academic as well as special activities. But, obviously, no little judgment, knowledge, and sympathy are required for efficient administration. Finally, an intelligent and consistent policy cannot be pursued in the absence of complete and accurate individual records.

SUMMARY

Supervision in schools like Emerson and Froebel is clearly more difficult than in conventional schools. The amount expended for this purpose at Gary would seem adequate, but the supervision provided is not appropriate to the real needs of a system that is more or less experimental in character.

The administration is not efficient. The problems to be met—program making, corridor conduct, attendance, records, etc.—are admittedly difficult of solution. Yet the modern high school has dealt with these very problems more or less successfully for years.

Finally, there is even greater need of wise administration and supervision in elementary schools having extended and diversified programs and operating under a departmental organization than in conventional schools, but to secure central direction and control of the needed character it will be necessary, in our opinion, to provide a higher type of administrative and supervisory talent than is usually found in conventional systems.

VII. COMPARATIVE COST

WHILE superintendents admit that extended and enriched programs and facilities, such as the two larger Gary schools afford, are desirable, many of them hold that under ordinary conditions the cost is prohibitive. On the other hand, boards of education have been strongly recommended to provide similar facilities and educational opportunities on the ground that, when such schools are operated under the new type of organization, they are no more expensive than conventional schools. Which of these conflicting opinions is correct?

Our report on cost gives in detail the actual expenditure for all Gary schools for 1915–1916, and the cost by grades for the three largest schools. Comparative cost was not and could not be considered. To assemble data on the basis of which reliable comparisons could have been made would have involved an equally thoroughgoing financial study of other cities. However, data presented in the several chapters of this present report now enable us to throw some light on the problem. The answer is not in terms of dollars and cents, but in terms of service. Though something more could be desired, the ideas of comparative cost now to be pre-

sented will not be without value from the standpoint of the considerations which determine the general school policies of a community.

Differences of expense in providing and maintaining conventional elementary schools, semimodern elementary schools,[1] and elementary schools like Emerson and Froebel are due, apart from the length of the school day, to differences in the cost of

(1) Buildings, grounds, and equipment, or plant;
(2) Instruction, or teachers' salaries;
(3) Administration and supervision;
(4) Plant operation and upkeep;
(5) Instructional equipment and supplies.

COMPARATIVE PLANT COST

In considering the relative building cost of a conventional school and of schools like Emerson and Froebel, two questions are involved: (a) the difference in the amount and character of plant capacity required to do the same unit of service, for example, provide for sixty standard sized classes; and (b) the difference in cost of an equal capacity in regular classrooms and in special facilities.

There is no magic in the new type of organization making it possible to accommodate two classes where formerly only one was cared for. Hence, when the proposed pupil instruction day is six hours, the capacity required is, as we have seen, the same whether the school is conven-

[1]For definition of conventional and semimodern school, see page 59.

tional or has special facilities and is operated on the departmental type of organization. There is, however, a difference in the character of the facilities. An illustration will clarify the issue. If a community having a 30 room conventional school plant must, by reason of rapid growth in population, provide at one time for 30 new classes, the situation may be met in one of two ways. The capacity of its conventional plant may be doubled by adding 30 conventional rooms; or an equivalent capacity in special facilities may be provided. In the latter case, if the proposed program is divided as suggested on page 71, the 30 ordinary rooms already at hand may be used, and, in addition, it will be necessary to provide:

(a) Gymnasium capacity equivalent to $11\frac{5}{8}$ standard classrooms;

(b) Auditorium capacity equivalent to $6\frac{3}{8}$ standard classrooms; and

(c) Capacity in other special facilities, such as nature study rooms, handwork rooms, cooking and manual training rooms, equivalent to $11\frac{4}{8}$ standard classrooms; or a total capacity in special facilities equal to the capacity of 30 ordinary classrooms.[1]

The financial question before the community is, therefore: Will a capacity in such special facilities equivalent to the capacity of 30 standard classrooms cost as much as, less, or more than, 30 conventional rooms?

The cost of standard classrooms as well as of equiva-

[1]See page 72.

lent capacity in special facilities varies from city to city and also with building standards. But in the same city and with building standards in both cases the same, school architects are generally of the opinion that on the whole special facilities, such as those in question, can be provided at approximately the same initial cost as an equivalent capacity in standard classrooms.[1] In other words, a new plant for a six hour school day and a program divided as suggested above, can be procured for about the same initial outlay as a new conventional building of the same capacity; further, when sufficient additional capacity is needed, a conventional plant can be provided with special facilities for about the same expenditure as would be required to provide an equivalent increased capacity in regular rooms.

Although this conclusion, based on a 60 class building, holds approximately under the above conditions for plants sufficiently large to accommodate an extended and enriched program, whether for 18, 24, 30, or more classes, it is subject to a number of limitations; it would, for example, not cover extraordinary and unusual facilities, such as highly specialized laboratories for each of the sciences, or highly specialized practical shops, such as

[1]The opinions of architects are of value, but they would be the first to grant that the issue can be finally settled only on the basis of actual construction cost. Unfortunately, such data are not now at hand. Moreover, the question can probably never be settled for all buildings, but will have to be settled for each plant separately in view of the particular requirements. Among others, we have consulted the school architects of New York, Boston, St. Louis, Cleveland, and Newark.

forge and foundry. As pointed out above, such laboratories are neither necessary nor desirable, and highly specialized practical equipment cannot be operated economically in an ordinary elementary school.[1] Nor does the conclusion cover outside facilities, such as playgrounds, school gardens, and athletic fields. However, if the comparison is limited to an elementary school for the first six grades, it would more nearly cover the needed playgrounds and school gardens, depending, of course, on land values and the land area provided. Finally, the conclusion rests on the assumption that the two types of plants are used at their maximum capacities. It is, however, next to impossible, as we have seen,[2] to get maximum service out of a plant having special facilities and operated under the new type of organization, and this fact alone would probably increase the cost of such a plant as much as 5 per cent. over a conventional plant of the same actual capacity.

Nor does the conclusion hold for a seven hour pupil instruction day in schools like Emerson and Froebel in comparison with a six hour pupil instruction day in conventional schools. For, as we have seen, when the pupil instruction day in such schools is seven hours, and the program is divided as suggested on page 74, the building requirements of a 60 class school, when regular rooms are used eight hours, are equivalent to the capacity of 62½ standard classrooms, and when ordinary rooms are

[1] See pages 82–83.

[2] See pages 79–80.

used seven hours, equivalent to $62\frac{6}{7}$ standard classrooms.[1] That is, to extend the pupil instruction day in schools like Emerson and Froebel from six to seven hours increases the building requirements a little more than 4 per cent.

A kindred question is the cost of remodeling a conventional plant to provide the special facilities required by an extended and enriched program and the new type of organization. If the remodeling contemplates no increased capacity, but merely changes standard classrooms into special facilities, such as handwork rooms, nature study rooms, and auditorium, the cost of remodeling is an added expense. It frequently happens, however, that there are rooms in conventional buildings which, while not suited to regular academic work, may, when slightly altered, be employed for special activities; for example, a basement room may be used for cooking or manual training. By reason of the space in conventional plants that may thus be brought into active service, it is sometimes possible to add to the capacity of the plant enough to cover the whole or a part of the remodeling cost.

Unlike the conventional school, the semimodern school has, besides regular classrooms, certain special features, such as cooking and manual training rooms, auditorium or gymnasium; and, as operated, these contribute next to nothing to class capacity. Hence, other conditions and building standards being the same, plants of semimodern schools always cost more than conventional plants of similar capacity, and their relative expensive-

[1]See page 77.

ness over conventional plants increases with the number of special facilities provided.

In contrast, all special facilities in schools like Emerson and Froebel, theoretically, at least, contribute their part to class capacity. The plant of a semimodern school is, therefore, also relatively more expensive than plants like Emerson and Froebel, and, under given conditions, might, although it probably never would, be as much as 50 per cent. more expensive.

To illustrate: A semimodern school might offer precisely the same program and its plant afford precisely the same special facilities as one of the larger Gary schools. The only essential difference between the two schools under these conditions would be: The former is operated on the classroom type of organization, which leaves regular rooms idle when children are in special rooms; and the latter is operated on the new type of organization, which attempts to keep all facilities in use as continuously as possible. In this event, when the pupil instruction day is six hours and the proposed program is divided as suggested on page 71, a semimodern school to accommodate 60 classes would require 60 regular rooms and a capacity in special facilities equivalent to 30 standard classrooms, or a total capacity equivalent to 90 standard classrooms; whereas a school operated like Emerson and Froebel to accommodate 60 classes would require a total capacity equivalent to 60 standard classrooms.[1]

Regard for economy prevents school authorities from

[1]For plant requirements under the given conditions, see pages 71–72.

attempting highly extended programs in semimodern schools. But school authorities, especially in our larger cities, attempt in such schools moderately extended programs. Consequently their plant expenditures are always more per standard class than if they were content with conventional schools, and even when the pupil instruction day is not in excess of six hours, the outlay for plants may be as much as 50 per cent. greater per standard class than if the schools were operated on the new type of organization. In a word, whereas plant cost for a departmentalized school per standard class, exclusive of all outside facilities, will probably be as much as 5 per cent. more than for a conventional school, plant cost for a semimodern school is always greater per standard class than for a school operating under the new type of organization, and increases with the extent to which the program of the semimodern school requires special facilities.

COMPARATIVE COST OF INSTRUCTION

Similarly, the comparative cost of instruction in conventional schools, semimodern schools, and schools like Emerson and Froebel depends on such differences as there may be in the amount and character of the teaching service to be procured.

Conventional schools have a single teacher for each class. Therefore, a 60 class conventional school, when the pupil and teacher instruction day is six hours, needs 60 regular teachers.

With pupil instruction days of equal length, the number of class instruction hours for which a conventional school and schools like Emerson and Froebel must provide is the same. Hence, any difference in the number of teachers is due to differences in the size of the instruction groups, particularly in the special activities.[1]

With a teacher and pupil instruction day of six hours in schools like Emerson and Froebel, the program would probably be divided three hours to academic work and three to special activities. The three hours to special activities would probably be apportioned:

(a) Kindergarten and first grade, two hours to play and one hour to other special activities;

(b) Second to sixth grades, one hour to physical training, one to auditorium, and one hour to other special activities;

(c) Seventh and eighth grades, a half hour to physical training, a half hour to auditorium, and two hours to other special activities.[2]

The instruction groups in physical training for kinder-

[1]Gary practice sheds little light on this point. The two larger schools are combination elementary and high schools. At Emerson, in the spring term 1915–1916, for 9 high school and 14 elementary and kindergarten classes there were 29 teachers, besides 3 shopmen, a printer, and an assistant in sewing; at Froebel, for 7 high school and 45 elementary and kindergarten classes, 52 teachers, besides 5 shopmen and a printer; at Jefferson, for 20 elementary and kindergarten classes, 20 teachers and part time of a custodian; and at Beveridge, for 14 elementary and kindergarten classes, 14 teachers and a practical cook. The pupil instruction day in all these schools is, however, seven hours.

[2]It should be noted that this program contemplates no variety of specialized industrial opportunities.

garten and first grade would probably be one standard sized class, and for all other grades, two standard sized classes; for auditorium in all grades, two standard sized classes; and in other special activities for all grades through the sixth, a standard sized class, and for the seventh and eighth grades, a half of a standard sized class.

Under these program conditions a 60 class school would require:

(a) 30 regular academic teachers;

(b) $8\frac{7}{12}$ physical training teachers;

(c) $3\frac{8}{12}$ auditorium teachers;

(d) 15 teachers of other special activities; a total of $56\frac{5}{6}$ teachers.[1] That is, 5 per cent. fewer teachers than a conventional school of the same size requires, and the

[1]To accommodate 60 classes three hours daily in academic work is equal to 180 class instruction hours (60×3). Each teacher gives six class instruction hours daily, hence, there will be required 30 academic teachers (180÷6).

To give 16 kindergarten and first grade pupils (the estimated number in a 60 class school—see page 67) two hours of play daily is equal to 32 class instruction hours and would require $5\frac{2}{3}$ physical training teachers (32÷6). To give 34 second to sixth grade pupils one hour of physical training daily, and 10 seventh and eighth grade classes a half hour is equal, with instruction groups two standard sized classes, to $\frac{39}{2}$ class instruction hours, and would require $3\frac{3}{12}$ physical training teachers ($\frac{39}{2}$÷6).

To give 34 second to sixth grade classes one hour auditorium daily, and 10 seventh and eighth grade classes a half hour is equal, with instruction groups two standard sized classes, to $\frac{39}{2}$ class instruction hours, and would require $3\frac{3}{12}$ auditorium teachers ($\frac{39}{2}$÷6).

To give 16 kindergarten and first grade pupils and 34 second to sixth grade pupils one hour daily in special activities other than auditorium and physical training is equal to 50 class instruction hours, and would require

same holds approximately for all schools large enough to accommodate an extended and enriched program.

Any material change in the above program conditions and in the grade distribution of classes will alter the number as well as the kind of teachers required. For example, if we decrease the proportion of the total time for special activities assigned to auditorium and physical training, the number of other kinds of special teachers needed is increased. Increase the size of the instruction groups in other than academic instruction, and the number of special teachers to be employed is decreased. It is nevertheless evident that, under given program conditions with a six hour pupil instruction day, schools like Emerson and Froebel can operate with approximately 5 per cent. fewer teachers than conventional schools of the same size.

But these differences do not indicate the exact relative instruction cost. The kind of teachers to be employed is not the same. The conventional school needs regular teachers only. Schools like Emerson and Froebel use regular teachers for most, if not all, of the academic instruction, but approximately half of them should have special training and specialized experience. Such teachers generally receive higher salaries than regular teach-

8⅔ special teachers other than of physical training and auditorium. To give 10 seventh and eighth grade classes two hours daily in special activities other than physical training and auditorium is equal, when the instruction groups are half a standard sized class, to 40 class instruction hours (10×2×2), and would require 6⅔ special teachers other than of auditorium and physical training (40÷6).

ers. For example, the median salary of all regular elementary teachers at Gary for 1915–1916 was $800,[1] and for special teachers,[2] $900. Whether a difference of 12½ per cent. would be generally true we do not know. Yet, in view of the data at hand and the known higher salaries of special as compared with regular teachers in other grades of school work, authorities interested in establishing schools like Emerson and Froebel would be on the side of safety if some such salary differences were taken into account.

There remains one other factor to consider. Sixty teachers are admittedly ample to care for 60 standard sized classes in a conventional school, but the 56⅝ teachers, the estimated number required to care for an equal number of classes in a school like Emerson and Froebel, is the very minimum required under the given program conditions. To operate such a school with this number of teachers requires an ideal class distribution and 100 per cent. efficiency in the use of teachers. Ordinarily, owing particularly to irregularities in the number of classes in the several grades, this is impossible. Hence, in all probability, to care for 60 standard sized classes in such a school would require one, two, or perhaps three teachers in excess of 56⅝.

[1]See The Gary Public Schools: A General Account, Ch. VI.

[2]Under special teachers are included those of auditorium, expression, music, freehand drawing, mechanical drawing, nature study, handwork, household arts, manual training, and physical training, but not shopmen, nor the high school science teachers who also teach seventh and eighth grade science.

Therefore, when the probable difference in salaries of regular and special teachers, and the probable need of one, two, or three teachers in excess of the estimated number are taken into account, it appears that the instruction cost for teachers' salaries in schools like Emerson and Froebel will be as much as in conventional schools and may easily run 6 per cent. higher.[1]

Even this conclusion does not hold for schools like Emerson and Froebel when the pupil instruction day is seven hours. If the program for the seven hour pupil instruction day is divided as suggested on page 74, and if the instruction groups are of the size suggested on page 117, a 60 class school like Emerson or Froebel, when the teacher instruction day is six hours, requires 30 regular teachers and $33\frac{1}{6}$ special teachers, or a total of $63\frac{1}{6}$ as compared to $56\frac{5}{8}$ when the pupil instruction day in such schools is six hours.[2]

[1]On the basis of the median salary for regular teachers at Gary the salaries for 60 teachers in a conventional school aggregate $48,000. For a school equal in size to Emerson or Froebel, on the basis of the above estimate, there is need of 30 regular teachers, who, at $800, would cost $24,000, and need of $26\frac{3}{4}$ special teachers, who, at $900, would cost $24,150, or a total of $48,150. If to this there are added three special teachers in excess of the estimated number, at $2,700, the total would aggregate $50,850, or 6 per cent. more than in a conventional school.

[2]With the proposed seven hour pupil instruction day program for Froebel (see Appendix, Table G), 56 teachers care for 60 classes, 12 of which are of high school grade. The program requirements are, however, different from the above. It should be noted, for instance, that the 6 kindergarten classes have only a three period day and that there are 8 classes circulating as helpers; the physical training and auditorium instruction groups are also larger. It should also be noted that this proposed program provides only manual training and not a variety of specialized industrial activities.

Such differences as there may be between the number of teachers required by a conventional and a semimodern school of precisely the same size and with the same length of day arise from the fact that a semimodern school may and often does have special teachers. When they are occupied, a corresponding number of regular teachers are without classes and even the special teachers may not be kept busy. Obviously, a semimodern school will never require fewer teachers than a conventional school of the same size, and will ordinarily require more, the number varying with the extent to which regular teachers are relieved when their classes are under special teachers and with the extent to which special teachers are not kept fully engaged.

Differences in the number of teachers required by a semimodern school over schools like Emerson and Froebel arise from the same cause. Special teachers do not take the place of regular teachers in the former as in the latter; they are additional. Therefore, a semimodern school, which never needs fewer teachers than a conventional school, will probably require, with the pupil instruction day six hours and under the above program conditions, 5 per cent. more teachers than a school like Emerson or Froebel of the same size, and the excess will go above this according as the program calls for special teachers and these are provided.

To complete as well as to summarize these comparisons, schools like Emerson and Froebel, under given program conditions with a pupil and teacher instruction day of six

hours, require approximately 5 per cent. fewer teachers than conventional schools of the same size, and the per cent. will probably never fall as low as this in comparison with semimodern schools. However, authorities interested in extending and enriching the programs of their schools should not lose sight of the fact that the above estimate of the number of teachers required by schools like Emerson and Froebel may be exceeded in practice, nor of the fact that special teachers generally receive higher salaries than regular teachers. Hence, the instruction cost in schools like Emerson and Froebel will doubtless be as high as, and may easily be as much as 6 per cent. higher than, in conventional schools, but doubtless never as high as in semimodern schools. Let it, however, not be forgotten that for this relatively small possible increase in expense over the conventional school, immensely larger educational opportunities are obtained. The Gary scheme is not cheap in the sense that it offers more and costs less; it is only cheap in the sense that it offers much more and costs at most only a little more.

COMPARATIVE COST OF OTHER ITEMS

Of the other items affecting cost little that is definite can be said. Schools like Emerson and Froebel are more complex and require more delicate adjustment than either conventional or semimodern schools, and to be effective require a superintendent, supervisors, and school principals of high type. Hence, administra-

tion and supervision will be more expensive in such schools than in either conventional or semimodern schools.

The plant operation and upkeep cost of schools like Emerson and Froebel will also be slightly more than that of conventional schools, as the plant is more elaborate. On the other hand, the building requirements of a semimodern school are, in proportion to the number of pupils accommodated, more extensive than those of schools like Emerson and Froebel, because the special facilities are for the most part in addition to regular classrooms. Hence, plant operation and upkeep cost of semimodern schools will exceed that of schools like Emerson and Froebel to the extent that special facilities are provided which do not add to pupil capacity.

There will be little difference in the academic instructional equipment needed. Each regular room of a conventional and a semimodern school has some provision for the academic branches. In schools like Emerson and Froebel it is not only possible but necessary to furnish given rooms for teaching one or more of these studies. Therefore, while the academic instructional equipment in any one of these rooms would greatly exceed that of any single regular room in either a conventional or a semimodern school, there would probably be little difference in the total amount in the different kinds of schools, although for the same expenditure schools like Emerson and Froebel would doubtless be the best and the semimodern the least well provided.

There will be some difference in the equipment and

supply requirements of the special branches. These requirements in the semimodern school will exceed those of the conventional school to the extent that the former provides special facilities and gives specialized instruction in drawing, cooking, and manual training, whereas those of schools like Emerson and Froebel, to the extent that they give greater emphasis to the special activities, will exceed both those of the conventional and the semimodern school.

Experience thus far does not enable us to establish with certainty any one of the above positions. Nevertheless, there are good grounds for believing that authorities planning to extend and enrich the programs of their systems, and to adopt the departmental type of organization, would do well to count on an increased expenditure for administration and supervision, for operation and upkeep, and on added outlay for instructional equipment and supplies, varying in amount according as their present schools are conventional or semimodern. On the other hand, they would, of course, procure additional educational opportunities for this additional expenditure.

SUMMARY

Of the three kinds of elementary schools under discussion, the semimodern is therefore on practically every count the most expensive, and its relative expensiveness increases according as its program is extended and enriched, as its plant is improved by special facilities, and as special teachers are provided.

Expenditures for administration and supervision, plant operation and upkeep, instructional equipment and supplies will be heavier in schools like Emerson and Froebel than in conventional schools. The building and building equipment cost, aside from what may be spent on outside facilities, will be approximately 5 per cent. higher, and there are good reasons to believe that the instruction cost may be about 6 per cent. higher. Comparative expenses cannot, however, be fairly considered except on the basis of comparative opportunities. Schools like Emerson and Froebel may and probably do cost more to build and to run than conventional schools, but this slightly increased cost is a trifle in comparison with the increased educational opportunities provided.

APPENDIX

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Note